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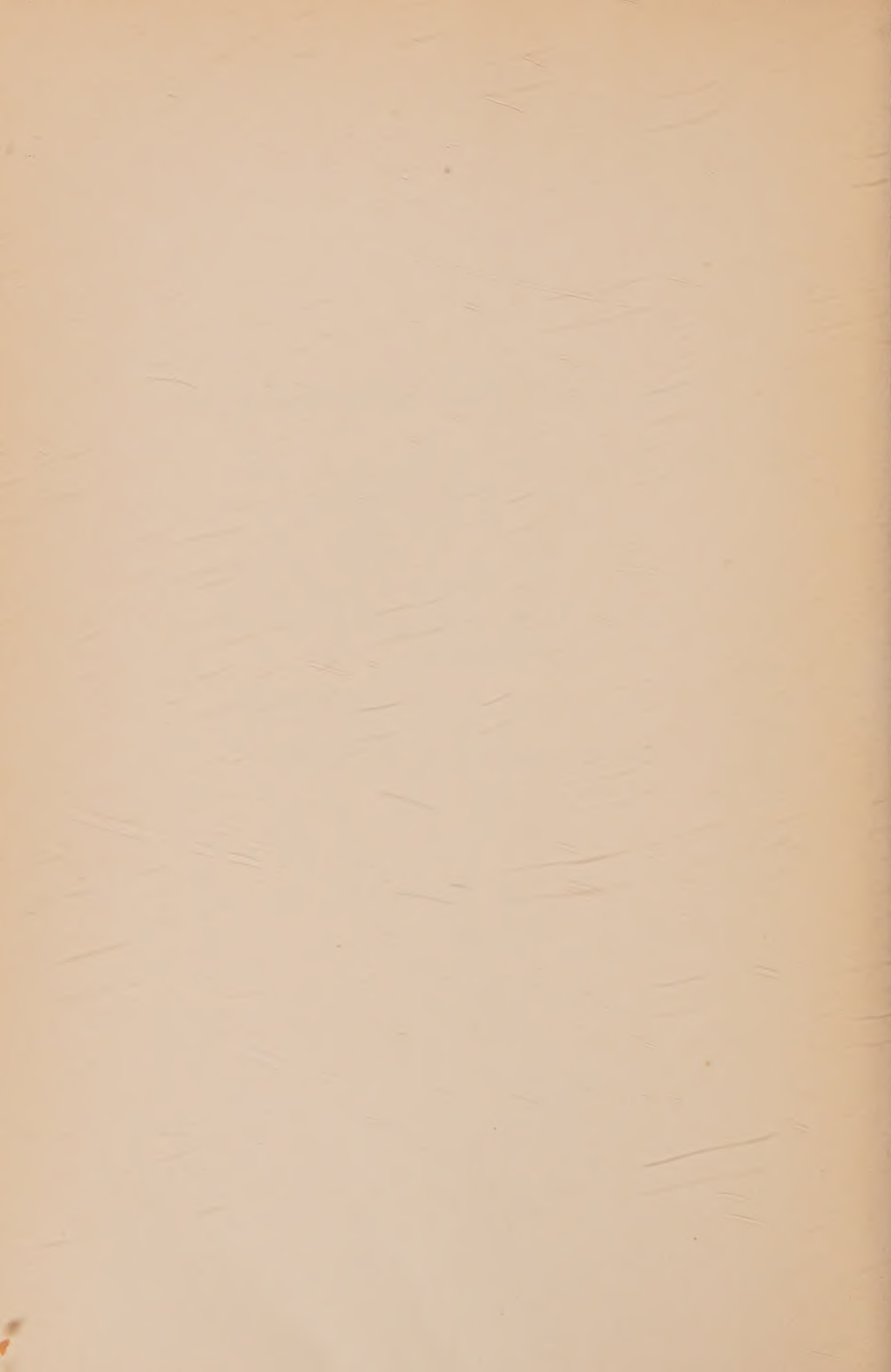


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With the approval of the President and Fellows of Yale University, a series of volumes has been prepared by a number of the Professors and Instructors, to be issued in connection with the Bicentennial Anniversary, as a partial indication of the character of the studies in which the University teachers are engaged.

This series of volumes is respectfully dedicated to

The Graduates of the University



LECTURES
ON THE
STUDY OF LANGUAGE

BY
HANNS OERTEL

Professor in Yale University

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TO
THE MEMORY
OF
WILLIAM DWIGHT WHITNEY
1827 — 1853 — 1894

PREFACE

THESE Lectures are here printed substantially as they have been delivered during the last three years. They are intended not to serve as a Manual or Handbook of Linguistic Science or to take the place of the larger works of Delbrück, v. d. Gabelentz, Paul, and Wundt, but to familiarize the student with a select number of the most important problems of general linguistics, to present these in their historical setting, to introduce him to the literature on these subjects, and, as occasion may offer, to point out opportunities for further research. This will account for a certain unevenness in the treatment of the various topics. The syntactical problems which could be touched only in the briefest possible way in Lecture V are treated by an abler hand in another volume of this Series (E. P. Morris, *On Principles and Methods in Latin Syntax*). Where bibliographical lists existed, a reference to the place where they might be found seemed preferable to loading the book with a reprint of titles.

On the psychological side I am largely indebted to Wundt's *Grundzüge der physiologischen Psychologie*. The first two volumes of his *Völkerpsychologie* (dealing with the psychology of language) appeared when these lectures were finished in manuscript. It is a matter of great regret to me that I could not use this important con-

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tribution to Linguistic Science as much as I should have liked. (But see p. 198 and p. 211.) In Lectures III and IV the Old English examples are taken from Sweet, the Greek and Latin ones chiefly from Brugmann's *Grundriss*. Some views regarding certain syntactical problems (in Lecture V) were gradually and jointly elaborated in conversations and discussions with my colleague, Professor Morris. The last section of paragraph fifteen (p. 316) should be credited to him. For the rest the footnotes will show that, in Goethe's words,

bei den Besten
Sass ich unter zufriedenen Gästen;
Ihr Frohmahl hab' ich unverdrossen
Niemals bestohlen, immer genossen.

Finally I discharge a pleasant duty in thanking Professor Morris and Professor Goodell, who by suggestions and assistance in seeing this volume through the press have placed me under great obligation.

HANNS OERTEL.

YALE UNIVERSITY,
NEW HAVEN, CONN.

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LECTURE I

THE LEADING IDEAS OF LINGUISTIC SCIENCE DURING THE NINETEENTH CENTURY

1 It¹ is a common method to define a science by enumerating and describing the objects with which it deals, and (in a manner not unlike that of an *actio finium regundorum* in Roman law) by establishing

¹ My plan was to sketch in this first lecture the beginnings of the most important currents of linguistic thought during the nineteenth century. The relative importance of these currents has been judged according to their bearing upon the linguistic investigations and problems of our own time. I have endeavored to seize an idea not when it occurred absolutely for the first time (the germs of almost all the leading ideas are much older than the century past), but where it appeared for the first time in such a shape as to exercise some effect upon the trend of investigation. Many ideas have been advanced at an unfavorable juncture and left no impress whatever, while these same ideas advanced again at some later point (often independently) have been received with enthusiasm. Again, a new idea being once advanced and having gained acceptance, space forbade the tracing out of its subsequent history in detail. A large mass of work of great value for the history of the study of language is thus necessarily omitted, for, as a rule, a new idea gains in importance and solidity by the careful elaboration of later scholars. Nowhere has it been my purpose to characterize investigators (in the biographical fashion of Achelis' *Moderne Völkerkunde*), but to trace what appeared to be leading ideas.

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boundary lines between it and its neighbors. Such a method is unsatisfactory,¹ because it attempts a separation which in reality does not exist, and which, if carried out in practice, would necessarily result in very serious disadvantages. For how often the same object or phenomenon is treated by more than one science. Theseus, we are told, erected upon the Isthmus of Corinth a column bearing upon one side the inscription: "Here is the Peloponnesus and not Attica," and upon the opposite side: "Here is Attica and not the Peloponnesus." But no scientific investigator may safely imitate him, for the very complexity of most objects which come under his observation forces him to concentrate upon them all the light from whatever quarter he may have to seek it. The secret of the success of one of the foremost Greek archæologists² lay to a great extent in his thorough training in architecture. The investigators of literature and of political economy are equally interested in the Homeric poems.³ The study of Goethe and of Rousseau owes a valuable contribution to the pen of a physician,⁴ and the requirements for the successful in-

¹ Cf. e. g. Heeren, *Geschichte des Studiums der Klassischen Litteratur* (1797), Einleitung, § 1, vol. I, p. 1. — L. Lange, *Kleine Schriften* (1887), p. 7 (in his inaugural address, 1855). — Curtius, *Philologie und Sprachwissenschaft* (1862), p. 3. — W. Arnold, *Ansiedelungen und Wanderungen deutscher Stämme* (1874-5), p. 6. — Scherer, *Jenaer Litteratur Zeitung* (1876), III, p. 472 = *Kleine Schriften*, I, p. 458. — Poehlmann, *Aus Altertum und Gegenwart* (1895), p. 34.

² Dörpfeld.

³ Poehlmann, *Die Feldgemeinschaft bei Homer*, in *Zt. f. Sozial- und Wirtschaftsgeschichte*, 1893 = *Aus Altertum u. Gegenwart*, (1895), p. 105; *Zur geschichtlichen Beurteilung Homers*, in *Sybel's Historische Zt.*, 1894 = *Aus Altertum u. Gegenwart*, (1895) p. 56.

⁴ P. J. Möbius, *Über das Pathologische bei Goethe* (1898) [Cf. the reviews in *Litterarisches Centralblatt* (1898), col. 1902, and in *Zt. f. Psychologie und Physiologie der Sinnesorgane*, XX (1899), p. 221] and the same author's *J. J. Rousseau's Krankheitsgeschichte* (1889). — Cf. a

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terpretation of the military commentaries of Caesar, of the medical treatises of Hippocrates or the Thucydidean description of the plague are obvious to every one.

True specialization consists in making all information of whatever kind contribute toward a fuller understanding of the one object under investigation.¹

But quite apart from being unsatisfactory and often harmful for practical purposes, this method, theoretically also, suffers from an inherent and incurable weakness.² Such a definition, to be exact and exhaustive, must consist in a repetition of all the main results of a science. It necessarily presupposes these results already achieved. These it sets out to systematize. Thus, as Taine³ has admirably put it, *un système est une explication de l'ensemble et indique une œuvre faite*. Sciences, however, are living and constantly developing. They show the same lack of symmetry in their development which is the characteristic sign of an organism during the period of its growth. To defy codification is the sign of a youthful science as it is the sign of a youthful religion. It is only when their vitality is spent that they submit to being embalmed and laid at rest in a final system.

- 2 Fortunately the unity and character of a science do not depend on the establishment of such boundary lines. As the true unity of a drama does not depend on the *dramatis personae* but rests upon the dramatic

similar discussion of Kleist's Penthesilea by Krafft-Ebing and Roetken (Zt. f. vergleich. Litteraturgeschichte, N. F., VIII, p. 28).

¹ Some good remarks against the narrow policy of the Chinese Wall in the Memoirs of Chief Justice Parsons, p. 153, and in Sir Edward Coke's Preface to Co. Rep., part III.

² Prantl, Geschichte der Logik (1855), I, p. 1. For a fuller exposition cf. Wundt, Philosoph. Studien, XII (1895), p. 1.

³ Essais de Critique et d'Histoire (5th ed.), Préf. p. vii.

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action,¹ so the unity of a science consists in the uniform final aim² toward which all individual investigations converge and which makes them all parts of one organic whole. It is this final goal which determines the uniform point of vision from which all objects and phenomena are to be viewed, and thus gives independence, coherence, and individuality to a science. It determines the method, *i. e.* the manner in which all material should be treated.³ As long as a science firmly adheres to its characteristic point of view, it will always be clearly kept distinct from its neighbors,⁴ and, far from sacrificing its independence or individuality by hospitably receiving their aid, it will on the contrary gain thereby in strength. But as soon as it fails to keep its goal in clear view it begins to disintegrate, and unless it can find another central point around which its elements may crystallize, though it may linger for a while, it will cease to be productive. It is for this reason that many of the most important epochs of a science are not marked by external changes such as territorial expansion, but by internal transformations brought about by modifications of the point of vision.

3 The growth of a science is reflected in the chief ten-

¹ Aristotle, *Poet.*, VI. 10. — Scherer (*Zt. f. d. oesterreich. Gymnasien*, XXIX, p. 125 [1878] = *Kleine Schriften*, I, p. 373, quoted by Ries, *Was ist Syntax?* [1894], p. 95 and p. 161, note 75) speaks of the "hero" who is required to give unity to an investigation; a happy comparison which also occurs in Humboldt (*Ges. Werke*, I, p. 310) and in Littré (*Études et Glanures* [1880], p. 2).

² Cf. Aristotle, *Poet.*, VI, 10, "τὸ δὲ τέλος μέγιστον πάντων."

³ Cf. Taine, *Essais de Critique et d'Histoire* (5th ed.), p. vii, "une méthode est une manière de travailler et indique une œuvre à faire."

⁴ W. Windelband in his "Rectoratsrede" (1894) divides sciences according to their method. Cf. *Zt. f. Psych. und Physiol. d. Sinnesorg.*, XVI, p. 231, on Rickert's *Grenzen der naturwissenschaftlichen Begriffsbildung*. — J. F. Fries, *Neue Kritik der Vernunft* (1806-7), § 70.

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dencies of its important investigations; and these variations will, on closer inspection, never appear capricious. For, though it might seem that sciences of all intellectual manifestations are freest and most independent in their development, closer scrutiny will reveal that the new ideas which advance and transform them do not arise spontaneously or stand isolated; on the contrary, they will be found closely correlated to the general intellectual drift and philosophical attitude of a given period of history. For, unconsciously, these permeate and mould the minds of the investigators and leave their indelible imprint upon their works. Indeed, it is impossible for any living science to stand apart from the life of the nation to which its votaries belong; to grow it must be deeply rooted in this life, it draws its vitality from it, it withers when this connection is severed. New epochs¹ in the history of civilization are the setting for new tendencies in scientific work. Here, as elsewhere, only a study of the past leads to an appreciative understanding of the present.

- 4 During the century past by far the greatest part of all investigations in the historical sciences has been borne along by one of two main currents of thought. Both of them have their beginnings at the opening of the century which has just closed, but they spring from different sources, they pursue different ends, they employ different methods. These two chief tendencies may perhaps best be called the one synthetic, the other analytic.²

¹ Cf. v. Sybel, *Über den Stand der neueren Geschichtsforschung* (1856), in *Kleine historische Schriften* (3d ed.), I (1880), p. 351.

² These two methods are clearly defined by Wundt, *Logik*, II, p. 491. What is here called synthetic method he calls "*individuelle Methode*,"

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5 The synthetic conception of Philology has its first and foremost representative in Friedrich August Wolf and is admirably outlined by him in an essay published in 1807 and, significantly enough, dedicated to Goethe: "Darstellung der Alterthumswissenschaft."

6 In order to understand and appreciate fully Wolf's attitude, it must be viewed in its historical setting and in its connection with the neo-humanistic movement of that period.¹ The parallelism of this humanistic revival of the eighteenth century and the earlier one of the fourteenth is no less instructive than are their points of difference. The humanism of the fourteenth century is the natural reaction of youthful nations standing at the threshold of their career against the supranaturalistic philosophy of life which they had borrowed from

while his "generische Methode" corresponds to my analytic method. Paul's "Prinzipienlehre" (Prinzipien d. Sprachgeschichte, 3d ed., § 1) "welche sich mit den allgemeinen Lebensbedingungen des geschichtlich sich entwickelnden Objektes beschäftigt" and "die Aufhellung der Bedingung des geschichtlichen Werdens liefert" is analytic or "generic" (Wundt). The opposite method has not been elaborated by Paul. For the simple "geschichtliche Betrachtung" of products of human civilization cannot be an end in itself, but must form the basis of either synthetic ("individual") or analytic ("generic") treatment. It is in the use to which the results of historic study are put (viz. on the one hand the discovery of laws of development, on the other the creation of a picture of an individual as an organic whole) that the real contrast lies.

The contrast between the two methods is well brought out by Wechsler (in *Forschungen zur Roman. Philologie*, Festgabe f. Suchier [1900], p. 412) where he contrasts Grimm and Bopp. Cf. also Ufer (in *Zt. f. Psychol. und Physiol. d. Sinnesorgane*, VIII (1895), p. 387), who contrasts in a similar manner Pérez and Preyer. Schleicher's comparison of the philologist with the farmer and of the linguist with the zoölogist (*Die Sprachen Europa's in systematischer Übersicht* [1850], p. 4, and *Die deutsche Sprache* [2d ed.], p. 121) has often been quoted.— Cf. also Dilthey's division in his *Einleitung in die Geisteswissenschaften* (1883), I, p. 33.

¹ For a fuller account of the periods of humanism, reformation, and neo-humanism, cf. Paulsen, *Geschichte des gelehrten Unterrichts* (1896).

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the decadent Roman civilization. The nations which entered upon Rome's inheritance did not, in reality, despise life, they loved it. Rome had turned away from the world with the surfeit of the aged who have tasted it and found it bitter, whose bodies only sluggishly respond to sense impressions from without, whose minds have become introspective. Her successors looked upon the world with the curiosity and confidence of youth, with an appetite sharpened by injunctions not to taste of its pleasures. In the Renaissance these nations found their true selves, they perceived their likeness in spirit with the ancients, they shared their ideal of life according to nature, the Ciceronian *virtus* which is *nihil aliud quam in se perfecta et ad summum perducta natura* became their ethical ideal. That strong joy in living which they themselves felt they found expressed by the classical authors. What wonder that they revelled in the "humanity" of the ancients?

Starting in Italy and invading Germany at the end of the fifteenth century, these humanistic ideas found a favorable soil among the educated and wealthy aristocracy. During the first quarter of the new century they had forced their way into the Universities, which reshaped their curricula to meet the new demands, when suddenly, about the middle of the sixteenth century, their onward march was checked by the all-absorbing movement of ecclesiastical reform. Not a few of the humanists, like Hutten, enthusiastically joined Luther in his attack on the Church of Rome, and he gladly accepted them as allies. But more far-sighted men, like Erasmus,¹ rejected Luther's overtures and watched with uneasiness and great concern a movement which (how-

¹ Cf. Ellinger's very fair estimate of Erasmus in Sybel's *Historische Zt.*, LV (1886), p. 487.

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ever much they might approve of its aim) offended them by its riotous methods, and whose blighting effects on humanistic studies they were keen-eyed enough to foresee. How could they be expected to join hands with a young man of indomitable and unreasoning energy who, in order to right by forcible means abuses which they themselves deplored, was about to throw the torch into the edifice they had patiently labored to erect? It is truly pathetic that the same movement which laid the foundation for the future freedom and independence of science was destined to destroy this early spring of a revival of learning.

It was not only that theological controversies now engaged the attention of everybody and allowed neither time nor interest for literary discussions. Luther himself turned his most violent attacks directly against humanistic studies and the Universities.¹ They are the "bottomless pit" of Revelation, they are the strongholds of that "archliar, sycophant, and hangman of souls, Master Aristotle." Small wonder if the decline of learning became appalling, so that Erasmus could truthfully exclaim: "*Ubiunque regnat Lutheranismus ibi litterarum est interitus.*" Melanchthon's letters are full of complaint concerning the illiteracy of the clergy, and his and Luther's last years are filled with energetic attempts to stem the increasing disregard for learning by a neo-scholastic revival. But the true spirit of pagan antiquity which had charmed the humanists was dead, and Luther and Melanchthon would have been the last to resurrect it.

In the seventeenth century the religious enthusiasm of the Reformation had burnt out and an ossified orthodoxy had taken its place, which led to a threefold reac-

¹ Cf. the Quarterly Review, CLXXXVI (1897, July), p. 33.

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tion: on the intellectual side toward Rationalism, the revolt of suppressed reason; on the religious side toward Pietism, the vindication of the individual's spiritual experiences against a formulaic creed; on the æsthetic side toward Neo-Humanism and Romanticism, attempts to fructify the barren present by a return to classical or mediæval ideals. Wolf is the philological representative of Neo-Humanism, as Grimm is that of Romanticism.

- 7 Viewed in this light, the sudden advance of philological studies in popular interest¹ is not surprising. Weary of endless and empty theological controversies and of the rationalistic philosophy of the Illuminati, people eagerly welcomed what appealed to the starved æsthetic side of their nature. How strongly and directly Wolf touched this æsthetic chord an analysis of Wolf's "Alterthumswissenschaft" will readily show. Wolf²

¹ Cf. for instance Paulsen, *Geschichte d. gelehrten Unter.*, p. 673, "Voss' *Odysseeübersetzung* oder Wolf's *Prolegomena*, zur Zeit ihres Erscheinens litterarische Ereignisse ersten Ranges . . ."

² Wolf's definition of philology is given in his *Kleine Schriften* (1869), II, p. 808 ff., reprinted from the first volume (1807) of the *Museum der Alterthums-Wissenschaft*. This essay is the result of lectures on *Encyclopædia and Methodology of Classical Studies* which Wolf delivered from 1783 to 1790. The first series of these was announced in these words: "*Encyclopædia philologica, in qua, orbe universo earum rerum, quibus litterae antiquitatis continentur, peragrato, singularum doctrinarum ambitus, argumenta, coniunctiones, utilitates, subsidia, denique recte et cum fructu tractandae cuiusque rationes illustrabuntur.*" On p. 826 he lays down the following program: "Wird hienach noch eine nähere Beschreibung des Ganzen unserer Wissenschaft gefordert, so wird sie auf den Inbegriff der Kenntnisse und Nachrichten gehen, die uns mit den Handlungen und Schicksalen, mit dem politischen, gelehrten und häuslichen Zustande der Griechen und Römer, mit ihrer Cultur, ihren Sprachen, Künsten und Wissenschaften, Sitten, Religionen, National-Characteren und Denkart bekannt machen, dergestalt dass wir geschickt werden die von ihnen auf uns gekommenen Werke gründlich zu verstehen und mit Einsicht in ihren Inhalt und Geist, mit Vergegenwärtigung des alterthüm-

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conceived of Philology as the Biography¹ of a Nation. Underneath the remains of classical antiquity he sees the organic development of two important civilizations. He does not study the works of the ancients for their own sake, but in order to become acquainted through them with those who produced them. Wolf proposed to do for these nations just what the biographer does for an individual. From the remains of classical antiquity he desired to construct a picture of the classical nations. In this ideal he and his whole school fully agree.² Philology to them is not a history of the litera-

lichen Lebens und Vergleichung des spätern und des heutigen, zu genießen." The goal of all antiquarian study is given on p. 883: "*Diese obenhin gethane Erwähnung des Werthes der eigentlichen Real-Doctrinen öffne uns jetzt den Zugang zu dem schon hin und wieder angedeuteten letzten Ziele aller in Eins verbundenen Bemühungen, gleichsam zu dem, was die Priester von Eleusis die Epoptie oder Anschauung des Heiligsten benannten . . . Es ist aber dieses Ziel kein anderes als die Kenntniss der alterthümlichen Menschheit selbst, welche Kenntniss aus der durch das Studium der alten Ueberreste bedingten Beobachtung einer organisch entwickelten bedeutungsvollen National-Bildung hervorgeht.*"

¹ This comparison of philology with biography occurs several times in Lazarus and Steintal's *Einleitende Gedanken über Völkerpsychologie* (Zt. f. Völkerpsychologie und Sprachwissenschaft, I [1860]); so on p. 23 with reference to the work of Humboldt, Grimm, and Boeckh.

² It is instructive to compare Wolf's "*Ueberblick sämtlicher Theile der Alterthums-Wissenschaft*" appended to his essay (Kl. Schrift., II, 894) with the plans of the five modern standard manuals, viz., Iwan v. Müller's *Handbuch der Klassischen Altertums-Wissenschaft*, Bühler's *Grundriss der indo-arischen Philologie und Alterthumskunde* [= *Encyclopedia of Indo-aryan Research*], Geiger and Kuhn's *Grundriss der Iranischen Philologie*, Paul's *Grundriss der Germanischen Philologie*, and Gröber's *Grundriss der romanischen Philologie*, and with those of the "*Jahresberichte*" for classical, Germanic, and Romance philologies. Wolf's outline is as follows: I. Philosophische Sprachlehre oder allgemeine Grundsätze beider alten Sprachen. (This is meant to be an analytical introductory chapter to nos. II and III; cf. p. 829, "*Diese [grammatischen] Untersuchungen sind von der einen Seite historischer, von der anderen philosophischer Art: jenes sofern jede Sprachregel von einer Thatsache ausgeht . . . , dieses weil keine Regel in der Sprache feststeht*")

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ture, or of the art, or of the religion of a given nation, but a history of its life which rests upon the interrelation and combined action of all these factors. The history of each separate department, such as literature, art, religion, presents, as Boeckh points out, a straight line of development, while Philology makes all these parallel lines converge toward one centre, viz. the national unit. It is not by chance that the national element at this time

ohne durch die Natur des Redegebrauches begründet zu sein.") II. Grammatik der Griechischen Sprache. III. Grammatik der Lateinischen Sprache. IV. Grundsätze der philologischen Auslegekunst. V. Grundsätze der philologischen Kritik und Verbesserungskunst. VI. Grundsätze der prosaischen und metrischen Composition oder Theorie der Schreibart und der Metrik. (From p. 833 it appears that practice in the writing of Latin and Greek prose and verse compositions is meant, "denn nur die Fertigkeit nach der Weise der Alten zu schreiben, nur eigenes productives Talent befähigt uns fremde Productionen gleicher Art ganz zu verstehen und darin mehr als gewisse Tugenden aufzufassen.") VII. Geographie und Uranographie der Griechen und Römer. VIII. Alte Universalgeschichte oder allgemeine Geschichte der Völkerschaften des Alterthums. IX. Grundsätze der alterthümlichen Chronologie und historischen Kritik. (This stands in the same relation to no. VIII in which I stands to II and III.) X. Griechische Antiquitäten oder Geschichte der Zustände, Verfassungen und Sitten der vornehmsten Staaten und Völker Griechenlands. XI. Römische Antiquitäten oder Alterthumskunde Roms und des älteren römischen Rechtes. XII. Mythologie oder Fabelkunde der Griechen und Römer. XIII. Litterarhistorie der Griechen oder äussere Geschichte der Griechischen Litteratur. XIV. The same for Rome. XV. Geschichte der redenden Künste und der Wissenschaften bei den Griechen. XVI. The same for Rome. XVII. Historische Notiz von den mimetischen Künsten beider Völker. XVIII. Einleitung zur Archaeologie der Kunst und Technik oder Notiz von den übriggebliebenen Denkmälern und Kunstwerken der Alten. XIX. Archaeologische Kunstlehre oder Grundsätze der zeichnenden und bildenden Künste des Alterthums. (This is to serve the same purpose for the archaeological remains which Grammar, Hermeneutics, and Criticism serve for the literary remains; cf. p. 852). XX. Allgemeine Geschichte der Kunst des Alterthums. XXI. Einleitung zur Kenntniss und Geschichte der Alterthümlichen Architektur. XXII. Numismatik und Münzenkunde der Griechen und Römer. XXIII. Epigraphik oder Inschriftenkunde beider Völker. XXIV. Litterarhistorie

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began to assume so prominent a place.¹ Germany just then stood on the threshold of national regeneration, preparatory to the Napoleonic wars. The time of catholic cosmopolitanism based on religious unity had long passed away; the pendulum swings in the opposite direction toward national particularism. Latin has ceased to be the universal language, the various national idioms begin to take its place and emphasize the resolution of Christian Europe into an aggregate of self-centred nations. At the same time it readily appears from these considerations that the object of this kind of philological treatment must always be a national unit. As there can be no Biography save of a definite person, so there can be no Philology, in Wolf's sense of this term, save for a definite nation. This is even Boeckh's² earlier and, in my opinion, better view, when in 1827 he defines Philology — meaning, of course, his teacher's — as "the historical study of the whole activity and life of a definite people within a reasonably circum-

der Griechischen und Lateinischen Philologie und der übrigen Alterthums-Studien nebst der Bibliographik.

¹ Sybel, *Kleine histor. Schriften*, I. (3d ed., 1880), p. 352.

² Boeckh in *Rhein. Mus.* [Abtheil. f. Philologie, etc.], 1827, p. 41 = *Ges. kleine Schriften*, VII, p. 264. Cf. also Heyse in a letter to Steinthal (*Die Sprachwissenschaft* Wilh. v. Humboldt's [1848], p. 33), against whom Steinthal argues, to my mind unsuccessfully. If these restrictions are right, then the term "Indo-European Philology" can be used for that period only during which the Indo-Europeans formed one national unit. Indo-European Philology does not include Greek, Latin, Germanic, and Slavic Philology any more than Latin Philology embraces the philologies of the various Romance nations. In this I fully agree with Meringer (*Zt. f. d. öster. Gymnas.*, XXXIX [1888], p. 130). This, however, does not apply to terms like "Indogermanische Sprachwissenschaft," "Indo-European Mythology," if they are used for the comparative study of the languages or the mythologies of a number or of all Indo-European nations. But such comparative treatment is quite foreign to Wolf's conception of philology.

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scribed period." While it is clear that Wolf's restriction of philological study to the two classical nations is arbitrary and in no way implied in his definition, any further enlargement which removes the restriction to a definite nation and a definite time is incompatible with the very essence of Wolf's conception of philology. From that point of view Boeckh's generalization in the "Encyclopaedie" cannot be considered an improvement.

The advance of Boeckh over Wolf does not lie here, but in the different place which he assigns in his system to language.¹ This latter was to Wolf primarily² an instrument (or, as he calls it, an *organon*) which enables us to gain access to the objects of philological study. In this respect the study of language stands in the Wolfian scheme on a level with criticism and interpretation, being like these two not an end in itself but a means to the proper study of the real objects of philology. In an important passage,³ although in a rather

¹ Boeckh, *Ges. kleine Schriften*, I, p. 105 ; V, p. 248.

² Wolf, *Kleine Schriften*, II, p. 829, " . . . hier reden wir von den alten Sprachen nicht sowohl als einem *Objecte* der Wissenschaft, vielmehr insoweit deren Kenntniss *instrumental* ist. Dadurch nemlich erhalten wir ein *Organon* für die gesammte Wissenschaft."

³ Cf. Wolf, *Kl. Schriften*, II, p. 829, "soviel werde bemerkt, dass ein tieferes Studium der Sprachen den Unterschied von Sprach- und Sach-Kenntnissen, den man gewöhnlich macht, nicht anerkennt." And especially p. 863, "In eigenthümlicher Würde und mit den fruchtbarsten Tendenzen zeigt sich das Studium der alten Sprachen wenn es von jeder Beziehung unabhängig und als *Zweck an sich* betrachtet wird. Bei dieser Betrachtung liegen folgende von wenigen recht erwogene Hauptsätze zum Grunde. Die Sprachen, die ersten Kunst-Schöpfungen des menschlichen Geistes, enthalten den ganzen Vorrath von allgemeinen Ideen und von Formen unseres Denkens, welche bei fortschreitender Cultur der Völker sind gewonnen und ausgebildet worden; sie liefern daher in ihren Zeichen eine Menge einzelner Gemälde von nationalen Vorstellungen, wodurch der Gehalt theils sinnlicher, theils besonders intellectueller Ideen und das Charakteristische in Auffassung von beiden dargestellt wird. Demnach muss jede ihrer Absicht einigermassen genügende Sprache gewisse Klassen

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casual way, Wolf had, however, pointed out that there is a reason for making the study of languages an end in itself, namely, when we regard them as early creations of the human mind in which not only the material but also the formal side of our thinking has found and is finding expression. Every language, viewed in this light, expresses not only much of what the nation which formed it thought, but also how it thought it. These valuable suggestions have borne fruit in Boeckh's classification. For language is no longer grouped by him, along with criticism and hermeneutics, as the "formal" part of philology, but receives its place along with the other intellectual manifestations (mythology, philosophy, institutions, etc.) as one of the "material" parts of philology.

- 8 The chief characteristics of Wolf's conception of philology, then, are these.

First and foremost its synthetic nature. It examines

von Ideen darbieten, die nach der physischen und sittlichen Individualität des Volkes, welches sie bildete, vorzüglich bearbeitet, vervollkommen und mit angemessenen Ausdrücken bezeichnet sind. In der Art der Bezeichnungen aber liegen nicht geringere Schätze als in den Zeichen selber. Denn wie die letztern in jeder Sprache den Forscher mit neuen Vorstellungen bereichern und dadurch seinen geistigen Gesichtskreis erweitern, so gewähren die Bezeichnungsarten und gleichsam Gepräge, die jede Nation ihren Vorstellungen aufgedrückt hat, einen zwar noch wenig erkannten aber ebenso vielfachen Gewinn. Durch die Kenntniss und fleissige Beschauung dieser Gepräge in mehreren Sprachen fangen wir zuerst an, uns in der Intellectualwelt zurecht zu finden und die bereits daheim erworbenen Reichthümer derselben besser kennen und gebrauchen zu lernen, indem mancherlei Modificationen ähnlicher Haupt-Ideen uns zwingen, die an denselben vorkommenden Unähnlichkeiten wahrzunehmen und solche Vorstellungen, die uns schon unter anderen Denkformen bekannt waren, von neuen Seiten aufzufassen. So erhalten wir in den mit einander verglichenen Wörtern und Ausdrucksarten nicht etwa armselige Schätze vieler gleichgeltender Zeichen, sondern einen uns wirklich bereichernden Vorrath von Mitteln zur Auflösung und Zusammensetzung unserer Ideen . . . "

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the individual remains of antiquity as to their genuineness, it cleanses them from blemishes by which, in the course of time, they have become defaced, it gives to each an adequate interpretation. But unless called upon to do so for the sake of a special problem of philological criticism or hermeneutics, it need not further inquire into the nature of these objects. It takes them as they are. For its chief interest lies, not in the objects themselves or in the laws which have shaped them, but in combining these elements into a biography of Greece or Rome. Like the biographer, it is not primarily concerned with processes or dynamic questions, but with the results of these processes and their synthesis.

9 And it is for this reason that Wolf's Philology is an art,¹ in the Aristotelian sense of *τέχνη*. Aristotle, in the Poetics (XXV, 1), distinguishes three kinds of poetic *μίμησις*, namely, of things as they were or are, of things as they are said to be, and of an unrealized ideal. The philological *μίμησις* is of the first kind. It differs from that of the poet in that the latter freely constructs from true elements an imaginary composite whole, be it characters or incidents, which has never so existed and may therefore ever exist, while the Wolfian philologist carefully reconstructs from their elements actual characters and events as they have really existed.

10 Such reconstruction requires artistic perspective, a well-planned arrangement of parts in order to produce the desired effect, a proper foreshortening. In the theoretical discussions of Wolf and his followers comparatively little emphasis is laid on this very important

¹ This aspect of philology has been elaborated by Zacher in *Verhandlungen deutscher Philologen*, etc. zu Görlitz (1889), p. 49, who refers to Boeckh, *Encyclopaedie*, p. 25, and Usener, *Philologie und Geschichtswissenschaft* (1882), p. 25.

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point. But since it is not the single element in which the interest centres, each of these elements is of value in so far only as it forms part of the mosaic which is being constructed. Just as Aristotle¹ finds fault with the excessive size of a picture, "because the eye cannot take in all at once and consequently unity and the sense of the whole is lost for the spectator," so over-indulgence in detail must spoil the total impression because the reader is overwhelmed by the mass of *minutiae*.² Proportion is the very essence of art, and only by a constant reference to the whole can the proper place and value be assigned to each element.

- 11 The theory of the relative importance of characteristics which Aristotle³ alluded to and which Jussieu⁴ introduced into the natural sciences teaches that in natural organisms some qualities are primary and essential because they determine the whole structural plan; others are secondary or tertiary, variable, sometimes wholly absent. With great propriety Taine⁵ has applied this

¹ Poet., VII., 4.

² Sorel, *Nouveaux Essais d'Histoire et de Critique* (1898), p. 9, quotes Voltaire's "Il faut voir les choses en grand," and complains (p. 1) "nous avons, en histoire, le préjugé du détail." "Et pourtant," he continues, p. 7, "sans les mémoires qui y réveillent les échos de la vie, l'histoire est . . . muette. . . . Il n'y a de notion de l'ensemble que par l'étude des faits particuliers; il n'y a de restitution intelligible de cet ensemble que par la résurrection de quelques-uns de ces faits. Ils ne sont pas l'histoire, mais ils sont les éléments de l'histoire. Il faut les recueillir, les critiquer, les trier, les grouper, en prendre comme une moyenne supérieure; puis, pour en former un tableau, choisir les plus caractéristiques et les reproduire non à titre de preuve, mais à titre d'illustration."

³ Poet., VIII, 4: *χρὴ . . . τὰ μέρη συνεστάναι τῶν πραγμάτων οὕτως ὥστε μετατιθέμενοι τινὸς μέρους ἢ ἀφαιρουμένου διαφέρεσθαι καὶ κινεῖσθαι τὸ ὅλον. ὁ γὰρ προσὸν ἢ μὴ προσὸν μὴδὲν ποιεῖ ἐπίδηλον, οὐδὲν μόνιον τοῦ ὅλου ἐστίν.*

⁴ Cf. A. de Candolle, *Introduction à l'Etude de la Botanique* (1835), p. 485.

⁵ *Essais de Critique et d'Histoire* (5 ed.), Préface, p. xxvi.

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to the life of individuals and of nations. And it is clearly the duty of the biographer to determine this relative importance of all characteristics; from this it follows that no two individuals or nations should be treated according to the same plan. In individuals as well as in nations we find a certain equilibrium by which excess in one direction entails a corresponding loss in another. "Naturalists have found that the exaggerated development of one organ of an animal produces a weakening or a reduction of other organs. Similarly the historian may state that the extraordinary development of one faculty, as the ethical quality of the Germanic Race or the metaphysical and religious quality of the Hindoos, produces in these same races an atrophy of the inverse faculties." So the biographer of Greece will undoubtedly place in the foreground as essential characteristics art, both plastic and literary, and philosophy. For the lasting contributions of Greece to the world's civilization lie in these fields. But the biographer of Rome would fail if he were to treat her in like manner. The place which art and philosophy hold for Greece is taken for Rome by jurisprudence and political administration.¹ As Freeman, paraphrasing a

¹ Wolf (Kl. Schriften, II, p. 821) states the case very fairly when he says: "Die Römer waren zwar nicht ein Volk von originalen Talenten, ausser in der Kunst zu erobern und zu herrschen. . . . Sie ahmten späterhin, als sie eine Litteratur gleich einer ausländischen Waare bei sich aufnahmen die Griechen mit Eifer nach; doch thaten sie dies in einigen Zeitaltern mit vielem Glück und mit so eigentümlich grossem Sinne, dass sie, gegen die Meinung der neuesten Hellenen-Freunde, etwas mehr als Traditoren Griechischer Litteratur wurden; auch bereicherten sie die empfangenen Theile des gelehrten Wissens mit manchem, was nähere Beziehung auf das praktische Leben hat: wie sie denn z. B. für wissenschaftliche Theorie des Rechtes beinahe [why only "almost" ?] dasselbige leisteten, was die Griechen in der Philosophie geleistet hatten." And he adds in the note: "Es liesse sich hierüber eine Vergleichung zwischen beiden Völ-

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famous passage of Vergil,¹ says in his Rede Lecture: "The special business of Rome was to rule nations, not merely to conquer by her arms, but govern by her abiding laws. Her truest and longest life is to be looked for not in the triumphs of her Dictators, but in the edicts of her Praetors. . . . The most original branch of Latin Literature is to be found not in its poets, not even in its historians or orators, but in what some might perhaps deny to be part of literature at all, in the immediate records of her rule, in the text-books of her great lawyers, in the itineraries of her provinces, in the *notitiae* of her government and offices. The tongue of Rome is the tongue of Gaius and Ulpian rather than the tongue of Virgil and Horace." It is not on account of their likeness that the two ancient nations of Greece and of Italy are especially adapted to joint treatment (they differed as widely as the English differ from the French), but because they form two such distinct types of two opposite ways of feeling and thinking, each furnishing a foil, as it were, for the other.

- 12 Wolf's philology, then, has two sides: the one turned toward the spectator, the other turned toward the artist-philologist. It is here, in the rear, that we find the critical scaffolding, bolts, ropes, and all that is necessary to produce a well-rounded and artistically conceived picture in front. Like any work of art such philological work is intended to appeal to a non-professional public.² As the layman enjoys a picture without him-

kern anstellen die das Verdienst des Römischen in ein sehr vortheilhaftes Licht setzen könnte."

¹ Aen., VI. 847-853, of which the first four lines are paralleled by Hor. Ep., II. 1, 90 f. — Cf. also the convenient summary given by Seyffert in his commentary to Cicero's *Laelius* (2d ed. besorgt v. Müller, 1876), p. 46-48 and 93-94.

² And to such a public Wolf actually addressed himself. Cf. Paulsen,

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self being able to paint, or as he enjoys a play without himself being initiated into the secrets of the playwright's or the actor's art, so he may enjoy the productions of Wolf's philology without himself being an investigator; they are, indeed, meant to be so enjoyed by him, and the excellence of treatment may, to a great extent be judged by the effect it has on the public. This will depend not only on the proper subordination and correlation of the characteristic elements, but at least in an equal degree on the amount of life which the artist is able to infuse into his creation.¹ If he fail in this he will only send his readers to sleep.

13 But to breathe the breath of life into his creation is not the only, and perhaps not the hardest problem which confronts the disciple of Wolf. Nor will it be unduly difficult to heed Plutarch's warning² and avoid the danger of turning pleader, and like the over-zealous biographer slight the faults and magnify virtues, in order to give a pleasing and beautiful picture rather than a true one.

14 There are two other difficulties which surpass all the rest in seriousness, and it is upon these rocks that Wolf's Philology, though guided by a careful helmsman, may suffer shipwreck.

The first is, that he who would successfully accomplish Wolf's purpose must unite two distinct qualities, namely, the critical for the preliminary preparation of his material and the artistic for its final composition.

Geschichte d. gel. Unter., p. 674, "Heyne und Wolf hatten keineswegs für Philologen gelesen; ihr Auditorium war zusammengesetzt aus Angehörigen aller Fakultäten."

¹ Cf. the almost identical remarks of Bulwer in the preface to the first edition of his *Last Days of Pompeii*, and of G. Freytag in the preface to his *Bilder aus der deutschen Vergangenheit*.

² *Vit. Cimon.*, 2.

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“Zwar mag in einem Menschenkind
Sich beides auch vereinen ;
Doch, dass es zwei Gewerbe sind,
Das lässt sich nicht verneinen.”¹

It is certainly not often that both are found in the same person. As a rule one has dwarfed the other; either the creative fancy, scorning a solid masonry of facts, builds its castle in Spain without carpenter and architect, or a hesitating exactness may become the fetish to which the children of the imagination are sacrificed.²

- 15 The second fundamental difficulty for the Wolfian philologist is the extent of inherently heterogeneous matter which he must assimilate. It is true that the various intellectual manifestations comprised in Wolf's scheme are not isolated but stand in a certain interrelation, but it may be doubted if this is of a kind to render much assistance in the mastery of so vast and varied materials. As the mind is readier to receive and correlate homogeneous facts, the tie which binds together the same manifestation, such as languages or beliefs, of different nations is closer than that by which the various manifestations of the same nation are united.³

¹ Goethe, Katzenpastete.

² Cf. Sybel on G. Waitz (*Histor. Zt.* LVI [1886], p. 484): “Die Aufgabe des Historikers zeigt mannigfaltige Seiten: Er soll kritischer Forscher, politischer Sachverständiger, darstellender Künstler sein. Als Forscher hat er die Pflicht jede Einwirkung seiner subjektiven Stimmung zurückzudrängen. Bei der Auffassung des geistigen Gehalts der Ereignisse wird stets der subjective Standpunkt des Betrachters sich geltend machen. Vollends die künstlerische Darstellung erhält ganz und gar von der Persönlichkeit des Künstlers ihr Gepräge. So sind in allen Zeiten und Ländern die Fälle äusserst selten, wo diese verschiedenen Fähigkeiten sich in einer glücklich begabten Individualität zu harmonischem Gleichgewicht vereinigen: fast immer wird auch bei hoch begabten Naturen ein gewisses Übergewicht nach der einen oder der anderen Seite sichtbar werden.”

³ This is the chief reason why in the case of modern nations Wolf's

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16 It is not difficult to see what the result is likely to be.

With the increasing mass of material to be mastered and with the more and more exacting requirements for its preliminary critical treatment, the artistic synthesis which was Wolf's ideal will be farther and farther — perhaps indefinitely — postponed. A feverish activity behind the scenes, but no rise of the curtain. But if artistic synthesis is the corner-stone of Wolf's philology, and if it is the final aim which gives character to any branch of study, the consequences of such loss of purpose must necessarily be fatal.¹ The idea of proportion is, under such circumstances, easily lost, and the relative value of a given item as part of the ideal whole is no longer correctly estimated. The individual investigations are no longer consciously directed toward one

ideal has met with almost insuperable obstacles. Cf. Maurer, *Fragen über die Organisation des neusprachlichen Unterrichts in d. höheren Lehranstalten Deutschlands, Österreichs u. d. Schweiz.* (Verhandlungen deutscher Phil., etc., Zürich, 1887, p. 336). His first thesis is: 'Der Unterricht in den neueren Sprachen sollte an den höheren Schulen so geordnet sein, dass den angehenden Philologen so wie auch dem Bildungsbedürftigen überhaupt ein *lebendiges zusammenhängendes Bild der modernen Kulturvölker* geboten würde.' See also Klinghart's remarks on Maurer's article, in *Engl. Stud.*, XI, 275.

¹ Cf. Gildersleeve in his address delivered at the Philological Congress, Philadelphia, Dec. 27, 1900 (Johns Hopkins University Circulars, No. 150, March, 1901; p. 3 of the reprint): "What has become of that ideal of the Science of Antiquity? The name 'Altertumswissenschaft' still flourishes on the cover of manual and encyclopædia, but the advance of specialization has made the scheme an impossibility — nay, as we are apt to say by way of self-excuse, a physical impossibility. There is no Science of Antiquity, there is nothing but a cycle of studies; there is no unity, there is only diversity. We can hope to cover only a small arc of the circle." "Perhaps," he concludes on p. 13, "with the return of art there will come the return of the vanished ideal. . . . There are signs of a coming time when we shall after all win our way back from diversity to unity, when every specialist shall work at his task in conscious relation with the whole — not merely with the cycle, but with the sphere itself. That is an oscillation, that is a return which some eyes have waited long to see."

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common centre, and sooner or later disintegration must inevitably result. And that public which welcomed Wolf because he supplied an aesthetic want will be alienated.¹

Surveying the development of philological studies, we may single out two periods in which they engaged, in a marked degree, general attention, namely, the Renaissance of the fifteenth, and the Neo-Humanistic movement of the eighteenth century. In both these periods they did so because they furnished an aesthetic complement to an almost wholly intellectual culture. In the former they offered a relief to the barren scholastic dialectics, in the latter to the rationalism of the Illumi-

¹ Cf. Paulsen, *Gesch. d. gel. Unterrichts*, p. 671-673. When he says: "Die Philologen selbst hatten sich den veränderten Verhältnissen angepasst. Sie wendeten sich mit ihren Arbeiten nicht mehr an einen grösseren Leserkreis," etc., it would seem that this attitude of philologists, far from being the result of popular apathy, was one of the chief causes for it.

It is instructive in this connection to follow the development of that kind of German historical novel to which the term of "professorial novel" has not inaptly been applied. Its vogue in Germany during the second half of the nineteenth century forms an interesting study when compared with the course and character of philological studies during that same period. Such a parallel might disclose the fact that the aesthetic spirit of Wolf's philology took refuge in the historical novel when philological work was gradually directed into other channels where the general public refused to follow. "Der historische Roman," says R. v. Gottschall in his *Deutsche Nationalliteratur*, "entrollt ein Culturgemälde der Vergangenheit; er führt uns eine Fülle von Begebenheiten vor, welche der Chronik entschwundener Jahrhunderte treulich nacherzählt sind; er beschäftigt die Phantasie in angenehmer Weise, indem er sie gern aus den Kreisen des gegenwärtigen Lebens herausreisst und die Existenz untergegangener Geschlechter bis in ihre kleinsten Züge vor uns aufbaut. Der Romandichter räumt irgend ein vergangenes Jahrhundert wie ein verschüttetes Pompeji und Herculaneum aus; er zeigt uns alle Wandgemälde und Henkelgefässe, alle Stellungen und Gruppen der Begrabenen, die heitere und trübe Arbeit ihres Lebens, mit einem Worte *er beseelt die antiquarische Forschung.*"

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nati. It can hardly be doubted that neither the advance in the natural sciences nor the changes in political and religious life, however important, would have succeeded in so profoundly influencing the position of philological studies, if there had not been the cankerworm of disintegration within Wolf's conception of philology. Attacks from without have a tendency to strengthen a unified community, but a community uncertain within falls an easy prey to them.

- 17 Neither criticism nor hermeneutics can ever be an end in itself.¹ They are the necessary substratum for all further work; they are not sciences by themselves, but

¹ As early as 1822 Boeckh writes in his *De antiquarum litterarum studio*: "*Magnopere igitur errare mihi videntur qui huius disciplinae ambitum ad interpretis et critici artes restringunt quibus manifestum est non summos doctrinae fines sed veri inveniendi instrumenta contineri.*" Cf. also the close of Lange's inaugural address (1855, *Kleine Schrift.*, p. 20): "*Zwei Disciplinen sind bisher unerwähnt geblieben, die . . . mitunter sogar fälschlich für den Kern der klassischen Philologie angesehen worden sind. Ich meine die Kritik und Hermeneutik: jene die Kunst der Beurtheilung der Aechtheit des Ueberlieferten; diese die Kunst der Verdolmet-schung des in seiner Bedeutung nicht unmittelbar verständlichen. Gewiss ist nun, dass die classische Philologie beide Disciplinen nicht entbehren kann, da die erhaltenen Reste des Alterthums, womit sie es zu thun hat, nicht immer, weder im ganzen noch im einzelnen, in einer keinen Zweifel übrig lassenden Weise erhalten sind, stets aber wegen der uns fremden Form, in der sie erscheinen, eine Erklärung bedürfen. Gewiss ist, dass niemand ein guter Philolog sein kann, der nicht eine gewisse Sicherheit in der Handhabung der Kritik und Hermeneutik besitzt. Gewiss ist endlich, dass die classische Philologie ein historisches Recht auf diese Disciplinen hat; denn sie ist im Bunde mit ihnen gross geworden und hat durch fortwährende Beschäftigung mit den Resten des Alterthums und die damit verbundene fortwährende Uebung der Kritik und Hermeneutik Methode in diese Disciplinen gebracht, so dass andere Wissenschaften, welche Kritik und Hermeneutik üben müssen, sie von der Philologie zu lernen pflegen. Aber alles dieses berechtigt nicht die classische Philologie mit Kritik und Hermeneutik zu identificiren, was nichts als eine Verwechslung von Mittel und Zweck sein würde. Ja es berechtigt nicht einmal der Kritik und Hermeneutik eine Stelle im Innern der Philologie zu geben, die sie folgerecht*

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parts of sciences, initial stages which are intended to lead up to something else. Without first hewing the beams no building can be erected; but who would hew beams except to erect a building? To have clearly recognized this, to have furnished one central point toward which all individual investigations should converge, and to have supplied in his artistic synthesis a definite purpose for which the mass of critically sifted and correctly interpreted material might be utilized, is perhaps the greatest and most lasting merit of Wolf's plan.

- 18 This same material may, however, be viewed from another point, and this is the second aspect in which historical objects have, in the century past, presented themselves. In contradistinction to Wolf's synthesis this second attitude of the mind may be termed analytical. The contrast of the two methods is sharply marked. The central figure for Wolf is one nation; for the analytical investigator the central figure is some one of the many intellectual manifestations without reference to any particular nation, *non quis sed quid*. These homogeneous facts he sets out to analyze in order to discover the laws which underlie the development of the phenomena which make up this particular group. He does not study the Latin language because he is interested in the Roman nation, or Greek mythology because it casts light upon the Greek people, but he sees in both a series of facts which, when correlated to other homogeneous facts of other nations, may perhaps enable him to discover the genetic forces by which languages and religions are being shaped. In brief, his main prob-

ebensowohl im Innern der Geschichte, der Sprachwissenschaft, der Theologie haben müsste. Sie sind daher ausserhalb des Systems als formale Hilfsdisciplinen zu behandeln."

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lems are dynamic problems, his chief aim the determination of regular and uniform sequences.

- 19 To trace in detail the introduction of this analytical treatment in the various groups of historical phenomena, to disclose the reasons for its earlier or later appearance, its greater or smaller degree of success in different departments, would be of considerable interest. Here only a few points which directly bear upon the analytical method in linguistic studies can be touched. Even while Wolf's conception of philology reigned supreme we find analytical tendencies in Wolf's great rival, G. Hermann. As Paulsen¹ rightly points out, the difference between Wolf and Hermann was not a difference of opinion concerning abstract, academic questions but a difference of temperament and early training. Even apart from the fear of superficiality,² which he detested, Hermann would have found but small pleasure in the work of Wolf's school. His mind was of a decidedly philosophical bent — witness, for instance, his *Habilitationsschrift*: “*De poeseos generibus*” (1794), and the oration which he delivered in 1803 on entering upon his professorship at Leipzig: “*De differentia prosae et poeticae orationis disputatio*.” When a mind of such type applies itself to the study of any group of facts, it looks for system, order, law. And, in turn, it will be attracted most powerfully by those phenomena in which system, order, and law appear to manifest themselves most clearly. For reasons which will be given later language is pre-eminently of this character. And the method which Hermann proposed for the successful investigation of grammatical problems is analytical.

¹ *Gesch. d. gel. Unter.*, p. 639.

² Cf. Hermann's letter to Thiersch (*Paulsen, Gesch. d. gel. Unter.*, p. 641).

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“Quod multa verba in Graeco sermone genitivum regunt, quae in aliis linguis alios casus habent, non potest sane nisi exemplorum auxilio cognosci. Sed *unde ista nata sit linguarum diversitas* amplius est explicandum.”¹ But while Hermann’s attitude was undoubtedly analytic, his method of research was too much tinged with the deductive philosophy of the eighteenth century to enable him to reach lasting results. His attempt at reforming the methods of Greek grammar suffers from this fatal defect. Not for his results but for his aims, Hermann must be mentioned among the pioneers of the analytic treatment of languages. It was he who elevated grammatical studies from the ancillary position they had held and won for them relative independence. But he also introduced an abstract, logical method, which derives its system not from the observed concrete facts of a language, but from logical and philosophical speculation. Kant’s categories are to Hermann the means by which Greek grammar must be reformed. The fundamental error of this method, which the works of Karl Ferdinand Becker² exhibit in its clearest and extremest form, is the failure to distinguish between thought and the expression of thought in language. If thought and its linguistic expression were the same, the work of the logician would include that of the grammarian, the laws of the former would be of necessity the laws of the latter. As it is, the immediate object of the grammarian is not thought, but the expression of thought

¹ De emend. ratione gramm. Graecae (1801), p. ix. Cf. *ibid.* p. 3, “Et enim duplex omnino grammatici officium est, alterum . . . , alterum, ut, qua ratione ea, quam explicandam sibi sumpsit, lingua istis partibus usa sit, easque confirmarit, probe habeat perspectum.”

² Cf. especially his *Organism der Sprache*, which forms vol. I of his *Deutsche Sprachlehre*. Its first edition appeared in 1827, a second edition in 1841.

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and emotion in language. It is therefore proper that he should start with linguistic expressions, *i. e.* with the formal side of language, and, as grammarian, base his classification upon language-forms, a method which will, of course, not prevent his studying both the contents of each form or group of forms and the peculiar manner in which thought is reflected by them. The reverse, philosophical method has, for a number of reasons, longest maintained itself in syntax, the last department of grammar in which logical classifications are giving way to arrangements which rest upon a formal basis.

- 20 But there were then powerful agencies at work which were gradually forcing an analytical attitude upon observers. First of all, the growth of the historical method in which the enthusiasm of Freeman sees a contribution of the nineteenth century to the advance of human knowledge, — a contribution “which may boldly take its stand with the revival of Classical antiquity in the fifteenth century.” There are faint traces of an historical view in both Hermann and Wolf. In 1801 Hermann warns¹ “*ne usus diversarum aetatum gentiumque, immo etiam diversorum scriptorum unius gentis aetatisque confundatur,*” and six years later Wolf² deprecates the restriction of grammar to a set of rules abstracted from the writings of a “golden” period, while in reality it should comprise the whole history of a language and trace its development. But such remarks

¹ De emend. ratione gramm. Graecae, p. xiii.

² Kleine Schrift., II, p. 829, “Denn unter Grammatik wird hier nicht das eingeschränkte System von Regeln einer Sprache aus einem einzelnen Zeitraum ihrer Blüthe verstanden . . . der Name umfasst vielmehr alle Zeiträume des Lebens einer Sprache.” Just before this he defines Greek and Latin grammar as “die Theorie der Griechischen und Lateinischen Sprache nach dem von Zeit zu Zeit veränderten Sprachgebrauche.”

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are rather theoretical *obiter dicta*. It is not until somewhat later that practical work along the whole range of human thought is powerfully affected by this new aspect of familiar facts. The first practical demonstration on a large scale of the application of the historical method to grammar was given in Jacob Grimm's monumental German Grammar, the first volume of which appeared in 1819. Four years before this Savigny, who of all Grimm's teachers undoubtedly exercised the strongest influence over him,¹ had clearly stated the essence of the historical method:²

"This, then, is the vital question: 'What is the relation of the past to the present; how have things come to be what they are?' Some hold that every period freely and independently creates its world and shapes its existence. The historical school maintains that there exists no wholly independent and isolated human being; but what may appear as such, is, from another point of view, only an integral part in a larger whole. Thus, every man must necessarily be conceived of as member of a family, of a people, of a commonwealth; every period as the continuation and result of all preceding periods. Any other view is one-sided and, if it strives for sole recognition, false and harmful. But if this be true, then every period does not independently create its own world, but it is inseparably linked to the whole past. Every period, then, starts with a definite inheritance from the past. And this inheritance may be said to be at the same time compulsory and free; compulsory in the sense that it does not depend on the

¹ For the influence of Savigny on Grimm, cf. Scherer's articles in the *Preussische Jahrbücher*, XIV-XVI.

² *Zt. f. geschichtliche Rechtswissenschaft*, I (1815), p. 2. On the "historical school" in jurisprudence (Montesquieu, G. H. Hugo, Justus Möser, Savigny, etc.) cf. J. C. Buntschli, *Gesch. d. allgemeinen Staatsrechts* (1864), p. 564.

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caprice of the present; free in the sense that it does not depend on the will of a third person (as the slave's action on the command of the master), but is the result of the nature of the people which, in this larger sense, forms an ever-growing, ever-developing whole. Of the nation taken in this larger sense our present period is but a part. . . . Viewed in this way history ceases to be a mere collection of examples, and becomes the only path toward the true understanding of our present conditions."

Grimm's treatment of language is throughout parallel to Savigny's treatment of law. Like his teacher he conceives of every individual linguistic fact as one link in a continuous chain; the duty of the grammarian is "to trace the never resting element in language in its temporal and local changes."¹ His induction rests upon a vast mass of accumulated material, the completeness of which was at this time unparalleled. Like Savigny, he deprecates the introduction of general abstract ideas;² "they produce a false appearance of definiteness and system which stands in the way of an (unprejudiced) observation of the facts." As laws are to Savigny, so language is to Grimm pre-eminently a social product; Herder's collectivistic conception of the origin of popular poetry, which in F. A. Wolf's application to the Homeric poems (1795) had some years before produced a profound impression even in non-philological circles, is thus seen to be gaining ground and entering other departments of historical study. The distinction between the artificial products of the individ-

¹ Deut. Gramm., I (2d ed.), p. viii, "das unstillstehende, nach zeit und raum veränderliche element der sprache nachzuweisen."

² Deut. Gramm., I (1822), p. vi, "Allgemeinen logischen begriffen bin ich in der grammatik feind. Sie führen scheinbare strenge und geschlossenheit der bestimmung mit sich, hemmen aber die beobachtung."

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ual and the "natural" creation of the people is a necessary consequence of this view. The grammarian yields his place of honor to the untutored speaker; "every unlettered German who knows his language intuitively and without reflection may be a living grammar unto himself and boldly dismiss all rules of the language-masters." From now on the importance of dialects is ever increasing, not only of those which have found literary representation, but also of the dialectal peculiarities which live only in the spoken language of the people. Grimm realized their importance from the morphological and lexicographical point of view: "Historical grammar should note in them the fragments of inflections, formative elements, and even of syntactical constructions. . . . They contain the manifold material which either never reached a higher stage of perfection or has sunk back again from that stage. . . . The popular dialects possess some qualities which are wanting in our literary language; . . . they have preserved certain ancient virtues which the higher style has long given up, though in general they have not thereby gained, they lack nobility, dignity, and harmonious regularity."¹ The character of the sources, which from the nature of the case must be literary, made it impossible to include these latter in the plan of his Grammar. Their phonetic value, however, Grimm strangely undervalued: "Historical grammar need pay but little attention to the 'bunte wirrwar mundartlicher lautverhältnisse.'"

- 21 In another way, also, Grimm's Grammar ushered in a new era. I mean in the prominence which is first given here to the careful study of the changes of sound and their importance for etymology. "To have fully

¹ *Deut. Gramm.*, I (3d ed.), p. 23.

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restored to the letters [= sounds] their natural right and to have elevated them to that position which they fill in (the economy of) language" is counted by Pott¹ as "certainly not the least among the important services which J. Grimm has rendered to both the study of individual languages and to general linguistics." The turn which he thus gave to phonological investigation was of the highest importance for the future development of linguistic work. For in the study of the changes of sounds, "whose² movements are less disturbed than those of other elements of speech," were first observed those regularities which led to the introduction of the idea of law to the bewildering mass of detached facts. The law which goes by his name is the foundation upon which the method of modern phonology has been reared, and it is this new department of grammar which was the first to deprecate chance and caprice and to insist upon order and regularity, without which no scientific investigation can exist.

- 22 R. v. Raumer deserves the credit of having first seen that for the successful prosecution of these phonological investigations a thorough acquaintance with the physiological side of sound-production (phonetics) is indispensable.³ "We shall never reach satisfactory results if we

¹ Etymol. Forschungen (1833), p. xii.

² Pott, l. c.

³ Cf. Scherer (*Z. Gesch. d. deutschen Sprache* [1868], p. 39), "Immer wird ihr (= Raumer's Abhandlung über die Aspiration und die Lautverschiebung) das grosse Verdienst bleiben der Phonologie die physiologische Bahn gebrochen zu haben. [Theodor Jacobi's Beiträge zur deutschen Grammatik, in which a physiological explanation of vowel-strengthening is attempted on the basis of Kempelen's Mechanismus der menschlichen Sprache (1791), are also mentioned by Scherer, but are not accessible to me].

Raumer characterizes his work and contrasts it with that of Grimm, as follows (*Zt. f. d. österreich. Gymnasien* [1861] = *Ges. sprachwiss. Schrif-*

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are satisfied to have found certain letters in one dialect in the place of certain others in another dialect. We must penetrate into the nature of the sounds for which these letters stand in order to find out how one may have developed from the other. For since the transformation of words does not rest upon the signs with which they are spelled or upon their similarities, but upon the spoken sounds, it follows that phonetic investigations must accompany all etymology.”¹ In his *Die Aspiration und die Lautverschiebung* (1837) he gives a specimen of this desirable union of phonetics with historical grammar. The value of the spoken language, both of a dialectal community and of the single individual for phonetic, and hence for phonological, investigations which had been so strangely slighted by Grimm is placed by Raumer in the proper light: “In order to investigate the process of sound change in the spoken language, we

ten [1863], p. 406): “Das worauf es dem Unterzeichneten vom ersten Beginn seiner sprachgeschichtlichen Arbeiten am meisten anzukommen schien, war die Erforschung der Vorgänge selbst durch welche sich die Laute der Sprache im Laufe der Zeit umgestalteten. Um aber diesen Vorgängen auf die Spur zu kommen war vor allem die strengste Scheidung der gesprochenen und der geschriebenen Sprache nöthig. Dass Jacob Grimm den Unterschied von Schriftsprache und Mundarten bespricht versteht sich von selbst und ebenso, dass er hier wie überall sehr vieles Geistreiche und Treffende sagt. Dass es ihm aber nicht gelungen ist die gesprochene und die geschriebene Sprache streng aneinanderzuhalten und eben dadurch ihre wechselseitigen Beziehungen richtig zu erkennen, das wird mit der Zeit auch der grösste Verehrer Grimm's zugeben müssen. Ferner war für die Erforschung der lautgeschichtlichen Vorgänge in der bloss gesprochenen Sprache eine möglichst genaue physiologische Untersuchung und Bestimmung der in Betracht kommenden Laute unerlässlich. Auch hier wieder tritt man den unsterblichen Verdiensten Jacob Grimm's durchaus nicht zu nahe, sondern spricht nur aus, was in kurzem Niemand mehr leugnen wird, wenn man sagt, dass die Lautbestimmungen Jacob Grimm's wesentlicher Verbesserungen bedürfen.”

¹ From § 5 of Raumer's *Die Aspiration und die Lautverschiebung* (1837) = *Gesammelte sprachwissenschaftliche Schriften* (1863), p. 1 ff.

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must start from that which offers itself for direct and immediate observation; that is, from the spoken dialects. These must be investigated with the greatest care, not only the sound-systems of larger or smaller dialectal communities, but also the pronunciation of single individuals. How little interest Grimm attached to this sort of inquiry may be seen from this passage regarding the aim of dialect study: 'In my opinion,' he says, 'historical grammar must pay less attention to the chaotic mass of dialectal sounds than to the fragments of inflections, word formations and even syntactical constructions, which have been largely retained in popular speech.' From which it is seen that Grimm scorns the only source which we possess for gaining a first-hand knowledge of the spoken sounds. But this is the very starting-point for him who desires to penetrate into the mysteries of ancient sound-changes. Only thus are we enabled to translate the ancient written records back into living spoken sounds, only thus can one get beyond a mere interchange of letters and obtain an insight into the real process of sound change."¹ Unfortunately these excellent principles were, for a long time to come, but little heeded. In spite of the splendid phonetic work of Brücke² (1849 and 1856) and of Merkel³ (1856 and 1866), Scherer⁴ complained (1868) with good reason that "only rarely a philologist is found who is willing to

¹ Raumer, *Die geschichtliche Entwicklung der Laute* (1861) = *Ges. sprachwiss. Schriften* (1863), p. 408.

² E. Brücke, *Untersuchungen über die Lautbildung und das natürliche System der Sprachlaute* (*Sitz. Ber. d. Wiener Akad. Math.-Naturwiss. Classe*, 1849, p. 182-208), and *Grundzüge der Physiologie und Systematik der Sprachlaute* (1856; 2d ed. 1876).

³ C. L. Merkel, *Anatomie und Physiologie des menschlichen Stimm- und Sprachorgans. Anthropophonik*. (1856), and *Physiologie der menschlichen Sprache. Physiologische Laetik*. (1866).

⁴ *Zur Gesch. d. deut. Sprache* (1868), p. 39.

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enter into physiological (= phonetic) discussions, which he perhaps prefers to avoid altogether under the plea that they are superfluous subtleties. As a consequence, one cannot assume that even the most elementary things are known, and even Brücke's work, which ought to be the gospel of the phonologist, is not in everybody's hands."

Under Grimm's treatment grammatical studies assumed a new independence, while at the same time it was inevitable that the interest of the investigator tracing the successive stages in the history of a given language, noting gains, losses, and mutations, should become focused upon this process of evolution which was going on before his very eyes, and that thus both a firm basis and a strong incentive should be furnished for a study of the dynamic problems of speech. Bopp touched on all these points when he wrote¹ in 1827: "A Grammar in the higher, scientific sense of the word must be both history and natural science of a language. It must, as far as possible, historically trace the road along which a language has risen to its perfection or sunk to low estate [this states the historical problem]; but especially it should, after the manner of the natural sciences, investigate the laws according to which its development or its decay or its rebirth out of former ruins has taken place [this is the dynamic aspect of the problem]. Grammar cannot lay claim to independence and truly scientific value so long as its only aim consists in paving the way for a more perfect understanding of the meaning of the authors who have written in the language of which it treats, and

¹ Über J. Grimm's Deutsche Grammatik. (*Jahrbücher f. wissenschaft. Kritik*, 1827 [February] = *Vocalismus oder sprachvergleichende Kritiken* [1836], p. 3).

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if, for this purpose, it simply collects and classifies all common and rare forms that can be found — though in this manner also much can be done that is valuable and much keenness and learning can be displayed. But for the study of language pre-eminently, we must emphasize a maxim which Goethe expressed in his *Wanderjahre*: “Only a part of what is important is useful. In order to possess a thing completely, to have full mastery over it, one must study it for its own sake.”

- 23 Meanwhile the introduction of Sanskrit had opened up a new line of investigation, namely, that of comparative grammar, a term first found in Friedrich Schlegel's essay *Ueber die Sprache und Weisheit der Indier* (1808). During his residence in Paris Schlegel, under the guidance of Alexander Hamilton, had begun the study of Sanskrit, devoting to it about three hours a day for a little less than a year.¹ He had thus become acquainted with Sir William Jones' brilliant hypothesis, which had been formulated in 1786 but was not published until 1788,² that the Sanskrit language bears to Greek and Latin “a stronger affinity, both in the roots of verbs and in the forms of grammar, than could have been produced by accident; so strong that no philologer could examine all the three without believing them to have sprung from some common source which, perhaps, no longer exists. There is a similar reason, though not quite so forcible, for supposing that both the Gothic and Celtic, though blended with a different idiom, had the same origin with the Sanskrit.” To have elaborated this “affinity in the forms of grammar,” and to have

¹ Schlegel, *Über die Sprache und Weisheit der Indier*, p. iv. Cf. also Helmina v. Chezy's *Unvergessenes*, I, p. 270, and Benfey's *Geschichte d. Sprachwissenschaft* (1869), p. 358 and 361.

² *Asiatick Researches* (1788), I, p. 421. Cf. Benfey's *Gesch. d. Sprachwissenschaft*, p. 347.

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pointed to it as the really determining factor which must ultimately settle the question of the relationship of two or more languages, is one of the chief merits of Schlegel's book. A whole chapter, the third, is devoted to this task. After enumerating in the preceding chapter a list of roots which are identical for the languages compared, he now prepares to meet the objection that this striking similarity in the vocabulary may be the result of borrowing and of speech-mixture and hence prove nothing as to a common origin, by an argument "which completely decides this matter and puts it beyond doubt. . . . And this decisive point, which will clear up everything, is the structural plan of the languages or their comparative grammar by which we obtain an entirely new insight into the genealogy of languages, much in the same way in which comparative anatomy has cast light on (some) more advanced branches of the natural sciences."¹ It is apparent from this quotation that the aim of the comparative method as employed by Schlegel is to furnish incontrovertible evidence for the common origin of languages supposed to be cognate,² and to draw from this comparison of languages the im-

¹ *Sprache u. Weisheit d. Indier*, p. 28. Cf. also p. 3: "Die Ähnlichkeit liegt nicht bloss in einer grossen Anzahl von Wurzeln . . . , sondern sie erstreckt sich bis auf die innerste Structur und Grammatik. Die Übereinstimmung ist also keine zufällige, die sich aus Einmischung erklären liesse; sondern eine wesentliche die auf gemeinschaftliche Abstammung deutet," and what is said (p. 4-5) on the different structure of Hebrew and other languages. — The question as to what is to be considered adequate proof of genealogical relationship was subsequently very fully treated by Humboldt in an essay entitled "An essay on the best means of ascertaining the affinities of Oriental Languages" (dated June 14, 1828), in the *Transact. of the Royal Asiatic Soc.*, II (1830), p. 213. Cf. also Pott in *Zt. d. deut. Morgenl. Ges.*, IX, p. 405, and Brugmann in *Techmer's Internationale Zt.*, I, p. 223.

² I pass over in silence Schlegel's unfortunate attempt at deriving the classical languages from the Sanskrit.

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portant consequences for the oldest history touching the origin of peoples and their earliest migrations.¹

24 On a very large scale such a comparative grammatical analysis of most Indo-European languages was carried out by Bopp in his *Vergleichende Grammatik des Sanskrit, Zend, Griechischen, Lateinischen, Litthauischen, Gothischen und Deutschen*, the first volume of which appeared in 1833.² But the primary purpose of this comparison is to Bopp not the proof of identical origin for the languages analyzed, — though this is (incidentally as it were) systematically and definitely established, — but the explanation of the origin of grammatical inflection. The preface lays down this program: “In this book I intend to give a comparative description of the organic structure of the languages named in the title, which is to comprise all that which they have in common, an investigation of their physical and mechanical laws,³ and of the origin of those forms which express grammatical relations.” The relation of these three points to each other has been well set forth by Benfey.⁴ They are not strictly coördinated, but form three stages in Bopp’s ideal scheme of investigation; the comparison of the organic structure forms the basis, which, to be exact, requires the application of phonetic laws, — it is interesting to note how Bopp’s comparative method exactly like Grimm’s historical method necessarily leads to these, — but both are a means to answer the question how the Indo-European inflectional systems

¹ *Sprache u. Weisheit d. Indier*, p. 5.

² The second volume followed in 1835, including also the Slavic. A second edition in three volumes, appeared in 1857, 1859, and 1861, respectively, and included the Armenian.

³ Bopp’s physical and mechanical laws are equivalent to what we now call phonetic laws.

⁴ *Geschichte d. Sprachwissenschaft*, p. 474 ff.

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arose. That a mind like Bopp's, who, "especially in the philosophical courses, had early shown great acumen," and "had devoted himself to the study of language from the very outset with a view of penetrating in this manner into the secrets of the human mind and to discover something concerning its nature and its laws,"¹ should have been attracted to this extremely difficult set of dynamic problems, no one will wonder. But the lasting importance of his work does not lie in the attempted solution of this riddle. It rather consists in what his comparative method allowed him to do for each individual language. It enabled him to rise above the narrow confines of a single language, and to view its facts at a different angle and in the light of all the cognate members of the same family; and to his keener eye these facts, therefore, grouped themselves otherwise than before, and he was able to bring "life, system, and organic connection into the linguistic material presented by each individual language."² This, "the most just demand of our period which for some decades has been furnishing the means for it," he fully satisfied, and along this line his work marks an epoch.³

¹ Windischmann in the *Vorerinnerungen zu Fr. Bopp, Über das Conjugationssystem der Sanskritsprache* (1816), p. i-ii.

² "Des Lehrenden Blick muss über die engen Schranken eines oder zweier Individuen einer Sprachfamilie hinausreichen, er muss die Zeugnisse der sämtlichen Stammgenossen um sich versammeln, um dadurch Leben, Ordnung und organischen Zusammenhang in das auszubreitende Sprachmaterial der zunächst vorliegenden Sprache zu bringen. Solches zu erstreben scheint mir wenigstens die gerechteste Anforderung unserer Zeit, welche seit einigen Jahrzehnden uns die Mittel dazu an die Hand gegeben hat." Bopp's preface to the *Vergleichende Grammatik*, p. viii in the second ed.

³ There is no occasion to discuss here in detail Bopp's agglutinative theory of the origin of Indo-European inflection. Cf. for this the chapter in Delbrück's *Einleitung in das Sprachstudium*, and his *Vergleichende Syntax*, I, p. 47; also below, p. 285-287.

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25 The period which had opened with Bopp's Compendium closes with the Compendium of August Schleicher (1861). In it we have not merely a summing up of the results of comparative grammar of the preceding quarter of a century, but we find the comparative method put to a new use, and it is for this reason that Schleicher's Compendium may be said at the same time to close one period and to open another. This novel point is the reconstruction of the Indo-European parent language from the data furnished by the individual languages shown to have descended from it.

The idea of inferentially constructing a parent language on the basis of actually existing cognate languages or dialects seems to have originated with Schleicher. As early as 1846 he had said that "the Indo-European 'primary languages' — which must be in part inferred — stand in a similar relation to the old Indo-European mother-tongue as the Romance languages to Latin."¹ In his *Linguistische Untersuchungen*, vol. II (*Die Sprachen Europa's in systematischer Uebersicht*), published in 1850 at Bonn, he again speaks of "primary languages" (*Primärsprachen*, *e. g.* p. 29–30) such as the Latin and the Sanskrit, contrasting them with "secondary languages" such as the Romance languages and the modern Hindoo vernaculars. In some cases, he adds, such primary languages are not extant, but must be

¹ "Aehnlich wie die romanischen Sprachen zum Lateinischen, verhalten sich die indogermanischen Primärsprachen (die zum Theil selbst erst erschlossen werden müssen) zur alten indogermanischen Mutter. Indisch, Iranisch, Griechisch, Lateinisch, Slavisch, Littauisch, Deutsch und das noch ziemlich dunkle Celtisch, sind ebenso die Früchte einer ausgestorbenen Sprache wie Wallachisch und Italienisch, Spanisch und Portugiesisch, Provençalisch und Französisch die des Lateins." (The address, though delivered in 1846, was not printed until 1850, in Lassen's *Zt. f. d. Kunde d. Morgenlandes*, VII, p. 37).

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constructed from their descendants (secondary languages). These primary languages, in turn, he regards as daughters of one mother, the parent language (*Ursprache*). Two years later, in his *Formenlehre der Kirchenslavischen Sprache* (1852), he expresses himself similarly. A Parent Slavonic is posited there as the common source from which the different Slavonic idioms must be derived and which may be inferred by a comparison of these idioms (p. 27). And by way of illustration he constructs (p. 28) the Parent Slavonic active present participle on the basis of the Church Slavonic, Serbo-Illyrian, Russian, Polish, and Bohemian forms.

What is done here for the Slavonic dialects he considers possible for the Indo-European languages: "From a comparison of the oldest extant languages of the different Indo-European families, with due regard to the laws of historical grammar, we may form a comparatively clear conception of the Indo-European parent language from which the mothers of the different families [= Schleicher's primary languages] developed in a manner analogous to that in which the Romance languages were evolved from the Latin" (p. 4, l. c.). All the derived languages, he maintains, must form the basis on which the Indo-European parent language is to be constructed, since all of them have originally flowed alike from this common source. But the varying degree of faithfulness with which the different languages have preserved old sounds and forms makes, according to Schleicher, those languages of especial importance which have remained nearest to the original home of the Indo-European parent people.

Nine years later, in 1861, this plan of reconstruction was actually carried out. As the sub-title of the compendium "*Kurzer Abriss einer Lautlehre der Indoger-*

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manischen Ursprache, des Altindischen, Alteranischen, Altgriechischen, Altitalischen, Altkeltischen, Altslawischen, Litauischen und Altdeutschen" shows, "the attempt has here been made to place the inferred Indo-European parent language alongside of its really existing descendants" (2d ed., p. 8, n.). A discussion of the possibility of such an undertaking must be reserved for a later paragraph.¹ But that Schleicher never doubted it may be regarded as certain. Unless he believed that these inferred forms once possessed actual reality, he would never have attempted to give a specimen of Indo-European prose,² partly, to be sure, "*animi causa*,"³ but "partly also to prove that, though with difficulty, connected sentences may be formed in the Indo-European parent language." When he speaks of these inferred parent forms as "more or less doubtful,"⁴ he

¹ Below, Lecture II., p. 87.

² In *Beiträge zur Zt. f. vergleichende Sprachforschung*, V, p. 206-8.

³ Lefmann, in his biography of Schleicher (1870), p. 62, calls it "ein zwar interessanter, aber doch nur spielender Versuch."

⁴ *Compendium* (3d ed.), p. 8, "Der nachtheil, dass in einzelnen fällen die von uns erschlossenen formen der Indogermanischen ursprache mer oder minder zweifelhaft sind . . ."—The only passage which (if taken isolated) does not seem to be in harmony with this view is found in the Additions and Corrections to the second edition of the *Compendium* (in the *Indogermanische Chrestomathie*, p. 342). This statement was subsequently (beginning with the third ed.) added to the passage quoted at the beginning of this note. It reads: "Eine auf die lautstufe der indogermanischen ursprache zurückgeführte form nennen wir grundform (z. b. lat. *generis*, grundf. *ganasas*; griech. *γένους*, grundf. *ganasas*). Erst dann wenn formen verschiedener lautstufen auf eine und dieselbe lautstufe gebracht sind, lassen sie sich mit einander vergleichen. Dass diese grundformen wirklich einmal vorhanden gewesen sind, wird durch die aufstellung derselben nicht behauptet." From the context it would appear that the emphasis in the last sentence should be placed on the *dise* before *grundformen*, the meaning being that it is not claimed that just these forms actually existed, *i. e.*, that subsequent investigations may change them in particulars. So also Delbrück, *Einleitung* (English transl.), p. 50 and 53.

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refers to minor imperfections which are due, in practice, to the incompleteness of data and may, perhaps, be removed by increased knowledge, and not to qualitative imperfections of the method itself. And in the eyes of some the ultimate reconstruction of the Indo-European parent language has been the ideal of all special comparative investigation, the more so as it seemed the key to open to us the mysteries of a prehistoric civilization. "I had originally intended," says Fick, in the preface to the fourth edition of his *Comparative Dictionary* (1890), "a work on a much larger scale. I had in view to add to the lexicon of the Indo-European parent language also its grammar, and, furthermore, a sketch of the civilization of the parent people. But the time for doing this has not yet come. There is need of more works like J. Schmidt's *Pluralbildungen*, before we may dare approach the reconstruction of the grammar of the parent language. . . ."

- 26 The comparative treatment, so conceived, differs from the historical treatment not in aim but in method. In fact, it joins hands with the latter, and endeavors to extend its scope beyond the line of the earliest historical records into the prehistoric past. So that the two cannot properly be contrasted with each other, for comparative grammar, in Schleicher's sense, is in its essence nothing but historical grammar by comparative method.¹

¹ I quite agree with Paul (*Principien*, 3d ed., p. 21, § 11), that "historische Grammatik" and "vergleichende Grammatik" [this latter in the sense of the preceding paragraphs], cannot be contrasted, but are both "ein und dieselbe Wissenschaft mit derselben Aufgabe." But I should not continue, as Paul does, "und der gleichen Methode." For it seems to me that their respective methods are the very point in which the two differ, as Paul himself implies when he continues: "nur dass das Verhältnis zwischen dem durch Überlieferung Gegebenen und der kombinatorischen Tätigkeit sich verschieden gestaltet."

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The basis upon which most philological work rests is the direct evidence of extant records (literary remains, monuments, etc.). The historical method taught the student to arrange these so that by an unbroken line the most recent ones should be connected with the oldest. But with these oldest direct records the historical method came to a halt, because direct testimony was exhausted. It was here, then, that the comparative method of dealing with cognate languages supplied a means by which the still earlier, prehistoric periods might be opened up, so that a proper setting might be furnished to these oldest historical periods and a sequence be established which for want of evidence would otherwise have been broken. But while for historic periods the investigator deals with the direct evidence and extant records, the comparative philologist deals with indirect evidence and inferred records.¹ The comparative philologist who investigates anything pertaining to the prehistoric Indo-European people upon the indirect evidence furnished by the extant historical nations is in the same position in which the Latin philologist would be, if Rome had left no remains whatever and the Romance nations formed the starting-point of his inferential work.² If the deductions of the historical philologist are once removed from the extant facts, those of the comparative

¹ On the difference between direct and presumptive or circumstantial evidence, cf. *e. g.* Greenleaf, I, § 13 (Redf. ed.).

² W. v. Schlegel says in his *Réflexions* (1832), p. 31, about Bopp's work: "On ne saurait le blâmer d'avoir essayé de montrer comment les formes variées du sanscrit découlent de certains principes fondamentaux. Mais dans les recherches sur l'unité primitive des langues d'une même famille, lorsque nous essayons de nous faire une idée de leur formation graduelle, et de remonter à une époque de l'antiquité dont il n'existe point de monumens écrits, nous sommes sur un autre terrain que quand il s'agit des règles positives d'une langue fixée par l'usage depuis un temps immémorial."

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philologist are twice removed, so that the former has one source of error, the latter two. For example, the answer to the question, "Was it customary among the ancient Hindoos to abandon new-born females?" turns on the correct interpretation of the term *parāsyanti* in a certain Vedic passage.¹ But in order to answer the question, "Was it customary among the prehistoric Indo-Europeans² to abandon new-born females?" it is not only necessary to investigate this custom for the individual historical Indo-European nations, but to go a step farther and assume, first, the impossibility of independent development of such a habit among these nations, or of its spread by borrowing, and second, the existence of a similar locution for the Indo-European from which the Indo-European habit might be deduced as that of the other nations has been from their respective phrases. This is the "additional presumption or inference" which characterizes indirect evidence and distinguishes it from direct.

- 27 From a point of view radically differing from that discussed in the preceding paragraphs,³ Wilhelm von

¹ Taittiriya S. VI, 5, 10, 3. Cf. Boehtlingk, *Zt. d. deut. morgenl. Ges.*, XXXIV, p. 494, and *Berichte d. k. sächs. Ges. d. W.* (1900), p. 423.

² Cf. Schrader, *Reallexicon der indogermanischen Alterthumskunde* (1900), p. 53.

³ In an address delivered June 27, 1846 (printed in Lassen's *Zt. f. d. Kunde des Morgenlandes*, VII (1850), p. 25 ff.), Schleicher makes the following threefold division of the comparative study of language: (p. 32) . . . "sofern sie (die Sprachvergleichung) die Erforschung und Aufstellung immanenter Gesetze der Sprachentwicklung ist (erscheint sie) verwandt mit sprachphilosophischen Studien; betrachten wir die Sprachen mit Hinblick auf die sie redenden Völker, so gestaltet sich die Sprachvergleichung zur Geschichte; fassen wir den Zustand der Sprachen an sich in's Auge, und suchen wir denselben in seinem Verhältniss zu verwandten Sprachen zu begreifen, so haben wir die comparative Grammatik." He calls these three points of view the "philosophical," "historical," and "grammatical" respectively. Under the first head he points (a) to the

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Humboldt approached the comparison of languages. To his greatest and perhaps best-known work, *Ueber die Kawi-Sprache* (1836), he prefixed an introduction, "On the structural differences of human language and its influence on the mental development of the human race,"¹ and in so framing the title he himself has briefly and clearly defined what appeared to him the salient points in all linguistic investigation, namely, the study of the structural difference of the various languages² and the relation of speech and thought. "The theme (of linguistic science)," he says in his earliest essay (1821),³ "is the difference of languages; this must be treated inductively and historically, with reference to its causes and its effects, in its relation to nature and to the fate and aims of mankind."

We are here concerned with the method only of Humboldt's structural analysis. In order to accomplish

similarity in structural development in both related and unrelated languages, (b) to similarity in phonetic development. Here belong also questions touching the relation of speech and thought and the origin of language. The second aspect deals with the ethnological information of prehistoric times which may be derived from a comparison of languages, which thus appears as a valuable ally of history. By the grammatical point of view he understands Bopp's structural analysis, which substitutes for the earlier "empirisch-descriptive Methode" a "historisch-erklärende Methode."

¹ *Ueber die Kawi-Sprache auf der Insel Java, nebst einer Einleitung über die Verschiedenheit des menschlichen Sprachbaues und ihren Einfluss auf die geistige Entwicklung des Menschengeschlechts*, 1836-1839. (In three volumes.) The preface is reprinted in Humboldt's *Ges. Werke*, VI, p. 1-425. Pott published an annotated edition in 1876, to which is prefixed an essay on Humboldt's place in linguistic science.

² Entirely Humboldtian in conception is James Byrne's *General Principles of the Structure of Language* (1885).

³ *Ueber das vergleichende Sprachstudium in Beziehung auf die verschiedenen Epochen der Sprachentwicklung* in *Abhandl. d. k. Akad. d. Wiss. zu Berlin* (for 1820-1, published 1822), p. 239 = *Ges. Werke*, III, p. 247.

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this successfully, two things seem to him essential. In the first place, a minute description of the whole grammatical plan of the largest possible number of languages. "It is of importance," he says in the essay just quoted,¹ "to analyze each language carefully. For the greatest defect of General Linguistics is, that we have not yet penetrated deeply enough in our knowledge of the individual languages, and without such intimate acquaintance the comparison of no matter how many is of no avail. It has been deemed sufficient to register isolated, abnormal peculiarities of grammar. . . . But the dialect of even the least civilized nation is too noble a work of nature to be broken to pieces in this random way and to be offered for inspection in fragments only. It is an organic whole and must be treated as such." In the second place he requires that some one definite structural form should be traced through all languages. "If one studies the manner in which a given grammatical form is treated in the various languages, how it is elaborated or neglected, cast in some peculiar shape, connected with other forms, expressed with simple directness or in some roundabout way, a new light is often shed upon the character of this particular form and also on the (structural) qualities of the different languages considered."² A specimen of this latter method is Humboldt's essay on the Dual (1827), from which the passage just quoted is taken.³ Long before Humboldt we meet with attempts at a philosophical treatment of grammar, but these are all logical *à priori*

¹ Ges. Werke, III, p. 249.

² "Ueber den Dualis" in Abhandl. d. k. Akad. d. Wiss. z. Berlin (for 1827, published 1830), p. 161 = Ges. Werke, VI, p. 562.

³ Another example is H. C. v. d. Gabelentz's Über das Passivum (in Abhandlungen d. k. sächs. Ges. d. W., III [1861], p. 449-546).

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constructions, as Pott¹ has well expressed it: "Die logische Allgemeine Grammatik will der Sprache gleichsam vorausdenken ihren Ursprung, ihren Entwicklungsgang, ihre Methode, ihre Formen und Mittel." In Humboldt's works we have a continual struggle to break away from this deductive method which first constructs its system and then turns to the facts for illustration, and a conscientious endeavor to substitute for it an inductive method which should derive its system from an observation of the facts only. He carefully contrasts the use of each grammatical form as it actually exists in a given language with that which may be deductively constructed, and warns against the one-sided "systematizing mania" to which a deductive process in working out the laws of a language must invariably lead.² "Linguistic science, as I understand it, must be based upon facts alone, and their collection must be neither one-sided nor incomplete."³

All languages are to Humboldt so many attempts to realize a speech ideal;⁴ they all strive after the same

¹ Wilhelm v. Humboldt und die Sprachwissenschaft (= vol. I of Pott's edition [1876] of Humboldt's "Ueber die Verschiedenheit, etc.") p. lxxxix.

² "In Absicht der Form selbst aber steht nunmehr der von ihr wirklich gemachte Gebrauch demjenigen gegenüber, der sich aus ihrem blossen Begriff ableiten lässt, was von der einseitigen Systemsucht bewahrt, in die man nothwendig verfällt, wenn man die Gesetze der wirklich vorhandenen Sprachen nach blossen Begriffen bestimmt." Ges. Werke, VI, p. 563. On Humboldt's inductive method, cf. Benfey, *Gesch. d. Sprachw.*, p. 521 f.

³ Ges. Werke, III, p. 250.

⁴ Ges. W., VI, p. 10, "Sieht man nun . . . jede Sprache als einen Versuch, und wenn man die Reihe der Sprachen zusammennimmt, als einen Beitrag zur Ausfüllung dieses Bedürfnisses [i. e. der Hervorbringung der Sprache . . . zur Unterhaltung gemeinsamen Verkehrs (und) . . . zur Entwicklung (der) geistigen Kräfte und zur Gewinnung einer Weltanschauung] so lässt sich wohl annehmen, dass die sprachbildende Kraft in der Menschheit nicht ruht, bis sie, sei es einzeln, sei es im

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goal, but they reach it in various ways;¹ each one must meet certain requirements, but each one meets them after its own fashion. An investigation of the individual languages will show the different ways in which the separate national units have proceeded to build up the structure of their respective languages; and "as naturalists since Aristotle have arranged natural organisms in an ascending line, not by constructing *à priori* the ideal or the 'absolute form' of an animal, but with reference to the success with which these organisms accomplish their purpose, so the linguist should recognize in the various languages a graded series of attempts by which the purpose of speech has been more or less successfully realized, not by comparing each with an *à priori* ideal or an 'absolute form' of speech, but by judging each according to the adequacy with which it reflects thought."²

This is the method which later in the hands of the ethnologists becomes so valuable an instrument of research by which "the phenomena of Culture may be classified and arranged, stage by stage, in a probable

Ganzen das hervorgebracht hat, was den zu machenden Forderungen am meisten und am vollständigsten entspricht. Es kann sich also, im Sinne dieser Voraussetzung, auch unter Sprachen und Sprachstämmen, welche keinen geschichtlichen Zusammenhang verrathen ein stufenweis verschiedenes Vorrücken des Principis ihrer Bildung auffinden lassen."

¹ Ges. W., VI, p. 32. "Wenn aber das Gleiche gesucht wird, kann es doch nur in verschiedenem Geiste errungen werden; und die Mannigfaltigkeit, in welcher sich die menschliche Eigenthümlichkeit, ohne fehlerhafte Einseitigkeit, auszusprechen vermag, geht ins Unendliche." p. 40: "Man kann nun dem Ziele näher rücken, die einzelnen Wege anzugeben, auf welchen den mannigfach abgetheilten, isolirten, und verbundenen Völkerhaufen des Menschengeschlechts das Geschäft der Spracherzeugung zur Vollendung gedeiht."

² Steinthal, Die Sprachwissenschaft W. v. Humboldt's (1848), p. 137 (abbreviated in the translation).

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order of evolution;”¹ the same method which Hermann Post² has applied with great success to the scientific study of jurisprudence, and which he well characterizes as follows: “It cannot be denied that a mass of homogeneous ethnic facts are found among peoples for which genealogical connection can be neither proved nor claimed. . . . The method which investigates such ethnic facts without reference to their historical connection is to be termed the comparative method of ethnology. At bottom it is nothing but the empirical method upon as extended a basis as possible. . . . The comparative method of ethnology differs from the historical method, in that it arranges the empirical material from an entirely different point of view. The historical method endeavors to discover the causes for the ethnic facts of a people by tracing the development of these facts out of prior facts. . . . The comparative method, on the other hand, attempts to reach the causes of ethnic facts by a comparison of identical or similar phenomena without reference to place or time of their occurrence and inferring from them identical or similar causes. It is therefore entirely unhistoric. Its manner of arrangement of these facts is wholly different from that [of the historical method]; it separates what has

¹ Tylor, *Primitive Culture* (1st American = 2d Engl. ed., 1874), p. 6. Cf. especially: “Little respect need be had in such comparisons for date in history or for place on the map,” and (p. 7): “For the present purpose it appears both possible and desirable to eliminate considerations of hereditary varieties or races of man and to treat mankind as homogeneous in nature though placed in different grades of civilization.”

² Cf. the detailed discussion in Th. Achelis’ *Moderne Völkerkunde* (1896), p. 270 ff. [An enlargement of the same author’s *Die Entwicklung der modernen Ethnologie* (1889), where Post is discussed, p. 113 f.]; also Achelis’ *A. H. Post und die vergleichende Rechtswissenschaft in Sammlung gemeinverständlicher wissenschaftlicher Vorträge* begr. v. Virchow u. Holtzendorff, Heft 252 = N. F. XI. Folge, p. 481 (1896).

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been held to belong together, and connects the fragments in a way which, from the standpoint of the historical method, must appear arbitrary.”¹

It is in this sense only that we speak of Comparative Literature, while the terms Comparative Mythology and Comparative Philology cover both comparative methods, namely, that of comparing cognate religions and languages for the sake of proving affinity and opening up prehistoric periods, and again that of comparing them without reference to time and place.

While Humboldt and the few who have followed him have used this comparison of unrelated languages chiefly for the elucidation of syntactical questions, such as gender, or the passive, or for the structural classification of existing languages into groups, there is no reason which forbids its application to other linguistic problems. And Schleicher,² as early as 1848, made an attempt to treat

¹ Post, *Bansteine für eine allgemeine Rechtswissenschaft auf ethnologischer Basis* (1880–81), I, p. 12.

² Schleicher, *Sprachvergleichende Untersuchungen*. I. *Zur vergleichenden Sprachgeschichte*, 1848. Cf. especially p. 25 f. “Im Bisherigen sahen wir, dass a priori aus der überall im Wesentlichen identischen Natur des Menschen erschlossen werden könne, dass die verschiedenen Sprachen in ihrem Verfall [the peculiar idea of regarding all historical development of languages as decay is repeatedly emphasized by Schleicher, and rests upon Hegel's conception of History and his contrast between historic and prehistoric periods. It does not now need refutation] wesentlich gleiche Phasen zeigen. Doch damit ist dem nichtphilosophischen, auf strenge vorurtheilsfreie Beobachtung haltenden Sprachforscher noch nicht genügt. Es handelt sich darum zuzusehen, ob und in wie weiten Kreisen sich an den gegebenen Sprachen übereinstimmende geschichtliche Momente auffinden lassen. Bekannt ist hier der allgemeine Gegensatz synthetischer und analytischer Sprachen; ferner speciell das Beispiel der romanischen Sprachen und des Prakrit, die sich aus Latein und Sanskrit auf eine überraschend analoge Weise entwickelt haben u. s. w. Dass aber sämtliche indogermanische Sprachen, ja Sprachen nicht indogermanischen Stammes einen im Wesentlichen übereinstimmenden Verlauf, nicht nur in den allgemeinsten Umrissen, sondern in ganz speciellen Erschei-

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the phonetic phenomenon of palatalization¹ from this point of view, in order to show that the development of unrelated languages may run parallel not only in general points of structure (such as the parallelism of the Prākritic and Romance languages in changing from the synthetic to the analytic character), but also in very definite particulars.

- 28 If it is the purpose of the comparison of similar objects without any reference to their genealogical relationship to trace the same social phenomenon through as many nations as possible in order to observe its variations and its unfolding amidst different surroundings, then such comparison may be regarded as a surrogate for that indispensable instrument of all scientific research, namely, the experiment, where, from the nature of the case, direct experimentation is impossible. One of the most serious handicaps for the student of any problem of social science is that, unlike the physicist or chemist, he is not able to vary at will the conditions under which phenomena or objects present themselves. Nature performs on a very large scale a certain number of experiments before his eyes, but he can be a spectator only and never participate in them. A careful analysis of the various effects which have been produced or are

nungen zeigen davon sollen die folgenden Blätter eine, wenn auch kleine Probe geben. Absichtlich habe ich nur eine einzige, ganz specielle Spracherscheinung durch so viele Sprachen als möglich hindurch verfolgt, von der Ansicht geleitet, dass man von der allerconcretesten Beobachtung ausgehen und dem Einzelnen abzugewinnen suchen müsse, durch die man später zu Anderem und endlich zu umfassenden Resultaten gelangt."

¹ This investigation is noteworthy both for the breadth of its historical basis (p. 40-118), and its attempt at a physiological explanation of palatalization (p. 119-152). It should be compared with Lenz' treatment of the same problem, forty years later, in Kuhn's *Zt.* XXIX (1888), p. 1 ff.

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being produced by different localities, times, and conditions upon the object under consideration becomes doubly important. For it is thus that he may be enabled to distinguish between what is accidental and essential, to record certain uniform tendencies, to observe certain sequences the members of which stand to each other in the relation of cause and effect; in short, to arrive at general laws of development.

The element of time and place, which in the historical treatment was all important, becomes here irrelevant, for in a comparative investigation of this kind we are not concerned with the questions when or where a certain phenomenon arose, but with the similarities or differences of conditions under which the same phenomenon appears, wherever and whenever they may be found. While it must be contrasted with the historical method, it is in no wise opposed to it; on the contrary, each of the two methods must be regarded as supplementing the other.

- 29 All these various phases which mark the progress of linguistic study since the beginning of the nineteenth century have, more or less distinctly, one point in common, namely, the emancipation of grammatical studies from philosophical tutelage. Even a man of so pronounced a philosophical bent of mind as Humboldt is borne along by this tide, and a wide gulf separates him from Hermann and the deductive method of his *De emendanda ratione grammaticae Graecae* (1801) with Kant as arbiter of grammatical questions.

Drifting thus gradually away from philosophy, linguistic studies necessarily looked for new moorings, and a number of circumstances all tended toward an affiliation with the natural sciences.

- 30 Here was a group of studies which were rapidly coming

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into great prominence by the far-reaching importance of their results, by the exactness of their methods, and by the certainty of their results. The superiority based on this, which the natural sciences were not slow to assert, could not but arouse the envy of those who worked along other lines, and kindled the desire for an alliance. Schleicher, in whom this tendency culminated, wrote his Open Letter to Ernst Hæckel (*Die Darwinsche Theorie und die Sprachwissenschaft*, 1873), with the avowed purpose of introducing the method of the natural sciences among students of language: "The following lines will perhaps induce one or another young student of language to seek instruction concerning method from an able botanist or zoölogist. Take my word, he will not regret it. I, for one, know very well what I owe to the study of works like Schleiden's *Wissenschaftliche Botanik*, Carl Vogt's *Physiologische Briefe*, etc., for an insight into the nature and life of language. For they first taught me what evolution is. Among the scientists one may learn that for science those facts only count which are established by sure and strictly objective observation, and only that inference which is properly based upon such facts; a knowledge which might prove of value to some of my colleagues. Subjective interpretation, unfounded etymologies, vague and random guessing, in brief, all those things which deprive linguistic studies of their strictness and degrade them or even make them ridiculous in the eyes of sensible people, will be distasteful to one who has learnt to place himself upon the standpoint of sober observation. Nothing but exact observation of organisms and the laws of their lives, nothing but absolute devotion to its objects must form the foundation of our branch of study. Any assertion without firm basis, though it be

never so brilliant, is absolutely devoid of all scientific value."

- 31 At the same time syntax, the stronghold of philosophy, began to be neglected, and since Bopp the current of noteworthy investigations turns toward a study of the formal side of speech. It was early seen that a comparative study of the grammatical structure of languages such as Bopp proposed could not be profitably carried out except upon the firm foundation of phonology. Unflagging and strong insistence upon this point marks Pott's advance over his predecessors.¹ In writing the first edition of his *Etymologische Forschungen* (1833) he had been "especially and in what might appear to some an unwarranted degree concerned with the establishment of etymological sound-laws," and, though in the preface to the second edition of the same work (1859) a comprehensive treatment of phonology is reserved for a third volume, "it goes without saying that I have not, on that account, relaxed the severity of method, which must be preserved at all hazards; and the sound-laws, though for the moment kept in the background, have yet never been lost sight of."²

"Stimulated especially by Bopp and Grimm," he says elsewhere,³ "I have recognized in phonetics one of the most important keys which, if properly handled, will most safely unlock etymology. Often it is almost the only means or absolutely the only means to separate the genuine linguistic kernel from its deceptive shell, and to reduce the corrupt and metamorphosed linguistic material to its original and characteristic, *i. e.* its true

¹ Cf. Delbrück, *Einleitung* (Engl. transl.), p. 35; *Vergleich. Syntax*, I, p. 37; Misteli, *Zt. f. Völkerpsych. u. Sprachwiss.*, XI, p. 375.

² *Etymol. Forsch.*, I (2d ed.), p. viii.

³ *Etymol. Forsch.*, II (1st ed.), p. 349.

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form. Without it, it is vain to attempt to draw a line between cognate and borrowed words, and one is compelled to refrain from those inferences which may be based upon the latter as to the intercourse and exchange of ideas among nations."

Thenceforward this preponderance of phonetics and the formal side of word-formation (morphology) steadily grows; they dwarf syntax in the manuals, and it even becomes possible to publish "Grammars" which contain no syntax whatever.¹

And in phonetics was found something like that regularity, that definiteness, which the natural sciences seemed to possess. Historical investigation revealed a large mass of regular sequences which could be summarized in simple formulae, much as the scientists formulated their laws; further study continually removed what at first had seemed unaccountable exceptions; Grimm's law, — Verner's amendment to it, — the Palatal law, — are the most important milestones along this line of development which culminates in the neogrammarian movement (beginning with 1876). In 1833 Pott had said that "letters [= sounds] are the tangible element in language, not stationary, to be sure, but pursuing, on the whole, an even line of development" as contrasted with "the boldly erratic course of word-signification;" forty-six years later Paul² could assert "that every phonetic law operates with absolute necessity, that it as little admits of an exception as a chemical or physical law." In phonetics, then, there seemed to

¹ The Indo-European grammars in Breitung and Härtel's series are composed on this plan.

² In Paul und Braune's *Beiträge*, VI (1879), p. 1. But see the modification of this extreme view in his *Principien* (3d ed.), p. 61, § 46. — A detailed discussion of the question of "phonetic law" follows below, in the fourth lecture.

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be the realization of Schleicher's dream: definite objects, a method of ever-increasing rigor, uniformity of development, no temptation to, or need of, speculation. And the frequent excursions into the adjacent fields of physiology and acoustics which the study of phonetics demands would only tend to strengthen the connection of this branch (and with it of linguistic science in general) with the natural sciences.

- 32 And from another quarter also this belief drew strength. I refer to the conception of language as an independent organism. This view is only the natural consequence of the romantic revival of the "organic doctrine" as a reaction against the "mechanical doctrine" of the Illuminati. "An especial charm is now connected with the thought that everywhere in the world, but especially in the history of social life, development is due to an inward impulse; rests upon a secure, natural foundation; proceeds by even, not by jerky steps; is not the result of artistic, conscious purpose, but of an inborn instinct, which only gradually comes to know itself; is not the work of individuals with their small circle of interests and their indifference to each other, but of the soul and force of a whole community. The organic conception seemed here as superior to the mechanical doctrine as the living is to the dead."¹ There is a certain amount of truth in all this, and so far as this new organic theory of language opposed and put an end to the belief in a mechanical invention of speech and substituted a *process* for the *πρωτοβέσις* of the preceding period, it must be regarded as

¹ Eucken, *Die Grundbegriffe der Gegenwart* (2d ed., 1896), p. 140. — Cf. his whole chapter on "Mechanisch-organisch" p. 140 ff.; also Steinthal's exposition and criticism in *Grammatik, Logik und Psychologie* (1855), p. 1 ff.

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a noteworthy advance and of distinct assistance in the proper understanding of linguistic phenomena. But when it went beyond this, when it began to separate speech from the speaker, when it assumed for language an independent existence and a development according to laws of its own, the theory became dangerous and turned investigations into a wrong channel. Yet this is plainly the view held by Bopp, who opens his review (1827) of Grimm's German Grammar with the words: "Languages must be regarded as natural organisms which arise according to definite laws, carry within them the principle of their life according to which they unfold themselves, and gradually die. . . ." Stated with a certain lack of definiteness¹ and concreteness which is noticeable in all of his writings, we find a similar idea in Humboldt's last work (1836). "The origin of language lies so deep in mankind that it is not permissible to regard it as really the work and creation of the nations. It possesses an independent activity which clearly manifests itself, although its nature remains inexplicable; and, viewed in this light, language is not the result of any activity but an involuntary emanation of the mind, not a work of the nations, but a gift of their fate which they carry within."²

¹ On Humboldt's lack of definiteness cf. e. g. Steinthal in *Grammatik, Logik und Psychologie* (1855), p. xx f.

² Humboldt, *Ges. Werke*, VI. p. 5. "Es giebt aber eine Epoche, in der wir nur sie [=die Sprache] erblicken, wo sie nicht die geistige Entwicklung bloss begleitet, sondern ihre Stelle einnimmt. Die Sprache entspringt zwar aus einer Tiefe der Menschheit, welche überall verbietet, sie als ein eigentliches Werk und als eine Schöpfung der Völker zu betrachten. Sie besitzt eine sich uns sichtbar offenbarende, wenn auch in ihrem Wesen unerklärliche, Selbstthätigkeit, und ist, von dieser Seite betrachtet, kein Erzeugniss der Thätigkeit, sondern eine Emanation des Geistes, nicht ein Werk der Nationen, sondern eine ihnen durch ihr inneres Geschick zugefallene Gabe. Sie bedienen sich ihrer, ohne zu wissen, wie sie dieselbe

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The next lines seem to imply that this independence is not absolutely complete, for each language must adapt itself to the peculiar intellectual habitus of every nation; but even this dependence becomes questionable when, a little further on, it is stated that the intellectual peculiarities of a nation may not improperly be regarded as the result of its language.¹

With Schleicher this view has reached so definite a form that all uncertainty is removed. Languages are to him "natural organisms, which arose quite independently of the human will, developed according to definite laws, matured, then age and die; they possess that succession of phenomena which is usually termed 'life.' 'Glottic,' the science of language, is therefore a natural science, its method is, on the whole and in general, the same as that of the other natural sciences."²

Once stated in so clear a form, this theory immediately met with opposition,³ and its weakness and faults were

gebildet haben. Demungeachtet müssen sich die Sprachen doch immer mit und an den aufblühenden Völkerstämmen entwickelt, aus ihrer Geistes-eigenthümlichkeit, die ihnen manche Beschränkung aufgedrückt hat, herausgesponnen haben. Es ist kein leeres Wortspiel, wenn man die Sprache als in Selbstthätigkeit nur aus sich entspringend und göttlich frei, die Sprachen aber als gebunden und von den Nationen, welchen sie angehören abhängig darstellt."

¹ Ges. Werke, VI, p. 33, § 6: "Da die Sprachen unzertrennlich mit der innerster Natur des Menschen verwachsen sind und weit mehr selbstthätig aus ihr hervorgehen als willkürlich von ihr erzeugt werden, so könnte man die intellectuelle Eigenthümlichkeit der Völker ebensowohl ihre Wirkung nennen. Die Wahrheit ist, dass beide zugleich und in gegenseitiger Übereinstimmung aus unerreichbarer Tiefe des Gemüths hervorgehen."

² As early as 1846 Schleicher wrote of "die der Naturwissenschaft in gewisser Beziehung angehörige Sprachwissenschaft" (Lassen's *Zt. f. d. Kunde d. Morgenlandes*, VII [1850], p. 39).

³ Cf. e. g. Gaston Paris in the *Revue Critique* (1868), II. Part, p. 242. Whitney in *Transact. Amer. Phil. Assoc. for 1871* (1872), p. 35 = *Oriental and Linguistic Studies* (1873), chapter XI.

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pointed out to such good effect that Whitney,¹ in 1892, refused "to enter into a serious discussion of it; for probably no student of languages who has any claim to public attention agrees with" it.

33 To these three causes must finally be added the ill-advised and misleading metaphors in which linguistic writers indulged, borrowing their terms from the dissecting-room and the physiological and biological laboratories. All language is so fraught with metaphors² that even with constant care a wrong suggestion cannot at times be avoided. But in scientific work the harm of figurative phrases is incalculable, however much it may serve to brighten the style and impress upon it the mark of brilliancy. Nothing, indeed, is more dangerous than the use of figurative terms which seem so apt that they cause the reader to forget the figure. When we read in Bopp³ "that grammatical forms sprout forth like flowers or fruits," it is easy to forget the "like" and end in believing with Schleicher⁴ that "roots must be regarded as simple speech cells, which do not yet possess special organs for the functions of noun, verb, etc., and in which these functions (the grammatical relations) are as little differentiated as breathing and digestion in unicellular organisms or in the germ-cells of the higher animals." And many parallel cases⁵ could

¹ Max Müller and the Science of Language (1892), p. 23; cf. also p. 25.

² Cf. Biese, *Die Philosophie des Metaphorischen* (1893).

³ In his review of Grimm's *Deutsche Grammatik*, reprinted in *Vokalismus und sprachvergleichende Kritiken* (1836), p. 1.

⁴ *Die Darwinsche Theorie* (1873), p. 24.

⁵ Against the use of metaphors cf. e. g. G. Paris, *Revue Critique*, 1868, II. Part, p. 242, with references to his *Leçon d'ouverture du cours de grammaire historique de la langue française professé à la Sorbonne en 1867* and to Driol's *De la forme et de la fonction des mots* (1866); Paris, review of Darmesteter's *La vie des mots*, *Journal des savants* (1887, Février), p. 66 f.; Osthoff and Brugmann (*Morphologische Untersu-*

be given where anatomical, physiological, and biological metaphors, taken literally, have led to similar confusion, interesting instances of the reaction of word upon thought. Gaston Paris is quite right, when in the course of a strong argument against the abuse of terms like "organism," "birth," "growth," "death," "struggle for life," as applied to language, he says that they are only so many anthropomorphic weaknesses, and that "the savage who worships the axe he himself has made, or who believes that his arrow possesses an independent life of its own, proceeds on exactly the same lines as the linguist who endows with life groups of sound of which the human mind makes use. . . . One might almost believe that a sort of sorcery, such as was attributed to the runes, is exercised by words over the scholars who proceed to analyze them, and that words enjoy inducing them to make statements which in their innermost soul they do not believe."

- 34 The most important figure in the psychological reaction against these naturalistic theories is H. Steinthal. The tendency of all his linguistic work shows him as Humboldt's successor,¹ but his advance beyond the

chungen I [1878], p. xv) argue strongly against a view which "die sprache und sprachformen ein leben für sich, über den sprechenden individuen, führen lässt, und wo man sich von der terminologie in solchem grade beherrschen lässt, dass man fortwährend bildliche ausdrücke für die wirklichkeit selbst nimmt, und begriffe, die lediglich grammatische anschauungsformen sind, in die sprache selbst hineinträgt. Wenn es nur jemand fertig brächte, die so gemeinschädlichen ausdrücke 'jugendalter' und 'greisenalter' der sprachen, an denen . . . bisher fast nur fluch und kaum ein segen geheftet hat, für immer aus der welt zu schaffen;" Wundt, in *Deutsche Rundschau* (1891), p. 197; V. Henry, *Antinomies linguistiques* (1896), p. 9 f., under the headings "Une langue ne naît pas"; "Une langue ne croît pas"; "Une langue ne meurt pas"; Bréal, *Essai de Sémantique* (1897), p. 4.

¹ Cf. the eulogium with which Steinthal opens his *Commentatio de Pronomine Relativo* (1847): 'Itaque nobis hoc unum agendum videtur ut

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latter is marked, notably in two ways: he placed linguistics upon a definite psychological basis,¹ and he recognized that these linguistic phenomena were different in character from the psychological phenomena of the single individual; two achievements which should secure for him a permanent and honorable place among the founders of linguistic science.

In the preface to his *Classification der Sprachen* (1850)² Steinthal refers to "that most important discovery of Humboldt's genius," namely, the idea of an "inner speech-form," and five years later³ he confesses

quae ille (= Humboldt) inceperit perficiamus, quae adumbraverit uberius explicemus, etc."

¹ Cf. Scherer (*Zur Gesch. d. deut. Sprache* [1868], p. 156): "Daran zweifeln wir wohl endlich nicht mehr, Dank vor allem den Bestrebungen Steinthal's, dass wir es zunächst mit psychologischen Thatsachen in der Sprache zu thun haben."

² *Die Classification der Sprachen* (1850), p. 29: ". . . so haben wir die *innere Sprachform* in Betracht zu ziehen. Dieser Begriff ist der wichtigste in der Sprachwissenschaft und ist ein genialer Fund Humboldt's. Er wird auch theoretisch ausführlich besprochen § 11 [of *Über die Verschiedenheit des menschlichen Sprachbaues*, etc., *Ges. Werke*, VI, p. 92 ff.], aber trotzdem weder in sich noch im Verhältniss zu den Formen des Denkens in genügender Schärfe bestimmt." Very similarly as to the lack of definiteness, Marty, in *Symbolae Pragenses* (1893), p. 105, "die Erscheinungen, die W. v. Humboldt — ebenfalls ohne sie klar und consequent in ihrer wahren Natur zu erfassen — die 'innere Sprachform' genannt hat."

³ Steinthal, *Grammatik, Logik und Psychologie*, (1855), p. xx. "Die tiefste Anregung erhielt ich durch den Humboldtschen Begriff der inneren Sprachform, und das vorliegende Buch ist nur die Erläuterung dieses Begriffes. Ich sehe immer noch Humboldt als den Urheber desselben an, wiewohl ich einerseits nicht zurücknehmen kann was ich in meiner Kritik Humboldts (vergl. meine Schrift: *Die Classification der Sprachen*) überzeugend bewiesen zu haben glaube, dass er nämlich in keiner Grundfrage der Sprachphilosophie zu einer entschiedenen Ansicht und einem klaren Begriff gelangt ist, und andererseits zugestanden werden muss, dass nicht blos überall und längst die innere Sprachform geahnt worden ist, sondern dass auch innerhalb der historischen Grammatik selbst die Bedeutungslehre aufgetaucht ist, die doch wohl nichts Anderes sein wird, als die Darstellung der inneren Sprachform."

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that to him it has been the most suggestive of Humboldt's thoughts. It is difficult to give an exact definition of this "inner speech-form" as Humboldt conceived it. There is an almost irresistible temptation to bring greater clearness into Humboldt's somewhat vague and diffuse treatment of the important subject by the addition of ideas and the use of terms which belong to our own time,¹ though Humboldt may have intuitively divined some of them. I fear that I have not been able to avoid this in the following brief exposition.² Humboldt³ distinguishes in the first place between "speech

¹ So, for instance, when Wechssler in his very suggestive paper on "phonetic law" (Romanische Forschungen, Festgabe f. H. Suchier [1900], p. 385) speaks of Humboldt's understanding by "innere Sprachform" "den gesamten Bestand der mit den *akustisch-motorischen* Worten und Wortformen assoziierten Bedeutungen," he uses terms which presuppose the psychological investigations of Stricker (1880) and his successors.

² Scherer (Zur Gesch. d. deut. Sprache [1868], p. 172) defines: "W. v. Humboldt's 'innere Form' ist nichts anderes als der Begriff des Stils, den Winkelman so mächtig in den Vordergrund der Geschichtsbetrachtung geschoben hatte — angewandt auf die Sprache. Die innere Form ist die Eigenthümlichkeit des Gebrauchs."

³ Humboldt, Ges. W., VI, p. 40. "Man muss die Sprache nicht sowohl wie ein todes Erzeugtes, sondern weit mehr wie eine Erzeugung ansehen; mehr von demjenigen abstrahiren was sie als Bezeichnung der Gegenstände und Vermittelung des Verständnisses wirkt, und dagegen sorgfältiger auf ihren, mit der inneren Geistesthätigkeit eng verwebten Ursprung und ihren gegenseitigen Einfluss darauf zurückgehen. . . (p. 41) Die Sprache, in ihrem wirklichen Wesen aufgefasst ist etwas beständig und in jedem Augenblick vorübergehendes. Selbst ihre Erhaltung durch die Schrift ist immer nur eine unvollständige, mumienartige Aufbewahrung. . . (p. 42) Sie selbst [= die Sprache] ist kein Werk (*ergon*), sondern eine Thätigkeit (*energeia*). Ihre wahre Definition kann daher nur eine genetische sein. Sie ist nämlich die sich ewig wiederholende Arbeit des Geistes, den articulirten Laut zum Ausdruck des Gedankens fähig zu machen. Unmittelbar und streng genommen, ist dies die Definition des jedesmaligen Sprechens; aber im wahren und wesentlichen Sinne kann man auch nur gleichsam die Totalität dieses Sprechens als die Sprache ansehen. Denn in dem zerstreuten Chaos von Wörtern und Regeln, welches wir wohl eine Sprache zu nennen pflegen, ist nur das durch jenes Sprechen hervorge-

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material" and "speech-form," or between the raw material which is not yet speech, but which will be

brachte Einzelne vorhanden und dies niemals vollständig, auch erst einer neuen Arbeit bedürftig, um daraus die Art des lebendigen Sprechens zu erkennen und ein wahres Bild der lebendigen Sprache zu geben. Grade das Höchste und Feinste lässt sich an jenen getrennten Elementen nicht erkennen, und kann nur, was umso mehr beweist, dass die eigentliche Sprache in dem Acte ihres wirklichen Hervorbringens liegt, in der verbundenen Rede wahrgenommen oder geahndet werden . . . Die Sprachen als eine Arbeit des Geistes zu bezeichnen ist schon darum ein vollkommen richtiger und adäquater Ausdruck weil sich das Dasein des Geistes überhaupt nur in Thätigkeit und als solche denken lässt. . . (p. 43) Das in dieser Arbeit des Geistes, den articulirten Laut zum Gedankenausdruck zu erheben, liegende Beständige und Gleichförmige, so vollständig als möglich in seinem Zusammenhang aufgefasst und systematisch dargestellt, macht die *Form der Sprache* aus . . . (p. 44) . . . sie [ist] der durchaus individuelle Drang, vermittelt dessen eine Nation dem Gedanken und der Empfindung Geltung in der Sprache verschafft . . . (p. 45) Es ergibt sich schon aus dem bisher Gesagten von selbst, dass unter Form der Sprache hier durchaus nicht bloss die sogenannte grammatische Form verstanden wird. Der Unterschied, welchen wir zwischen Grammatik und Lexicon zu machen pflegen, kann . . . der wahren Sprachforschung weder Gränze noch Regel vorschreiben . . . (p. 46) Der Form steht . . . ein Stoff gegenüber. . . Der wirkliche Stoff der Sprache ist auf der einen Seite der Laut überhaupt, [but note: "Absolut betrachtet kann es innerhalb der Sprache keinen ungeformten Stoff geben, da alles in ihr auf einen bestimmten Zweck, den Gedankenausdruck, gerichtet ist, und diese Arbeit schon bei ihrem ersten Element, dem articulirten Laute, beginnt der ja eben durch Formung zum articulirten wird"], auf der anderen die Gesamtheit der sinnlichen Eindrücke und selbstthätigen Geistesbewegungen, welche der Bildung des Begriffs mit Hülfe der Sprache vorangehen. . . (p. 50). Zwei Principe treten bei dem Nachdenken über die Sprache im Allgemeinen und der Zergliederung der einzelnen, sich deutlich von einander absondernd, an das Licht: die Lautform, und der von ihr zur Bezeichnung der Gegenstände und Verknüpfung der Gedanken gemachte Gebrauch. . . Aus diesen beiden Principien nun, zusammengenommen mit der Innigkeit ihrer gegenseitigen Durchdringung geht die individuelle Form jeder Sprache hervor. . . (p. 51) Die Sprache ist das bildende Organ des Gedanken. Die intellectuelle Thätigkeit, durchaus geistig, durchaus innerlich, und gewissermassen spurlos vorübergehend, wird durch den Laut in der Rede äusserlich und wahrnehmbar für die Sinne. Sie und die Sprache sind daher Eins und unzertrennlich von einander. Sie ist aber auch in sich an die Noth-

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shaped (articulated, in the true sense of the term) into speech. This material is twofold, "innerlich" and "äusserlich," that is (to use modern terms), psychical and physical. The physical speech material consists of the inarticulate utterances, mere sounds, *ψόφοι*, which our vocal organs are capable of producing; the psychical speech material is made up of those sensations and cerebral processes which, being independent of all language, belong to a prelinguistic period. In speech a definite form is given to both physical and psychical material. The inarticulate sound, for the purpose of expressing thought, receives a definite form, it becomes articulate, the *ψόφος* changes to *φωνή*. This is the "outer speech form," the external, phonetic aspect of the speech symbols. The "inner speech form" is the defi-

wendigkeit geknüpft, eine Verbindung mit dem Sprachlaute einzugehen; das Denken kann sonst nicht zur Deutlichkeit gelangen; die Vorstellung nicht zum Begriff werden . . . (p. 52) Sowohl die Dinge in der äusseren Natur, als die innerlich angeregte Thätigkeit dringen auf den Menschen mit eine Menge von Merkmalen zugleich ein. Er aber strebt nach Vergleichung, Trennung und Verbindung, und in seinen höheren Zwecken nach Bildung immer mehr umschliessender Einheit. Er verlangt also auch, die Gegenstände in bestimmter Einheit aufzufassen und fordert die Einheit des Lautes, um ihre Stelle zu vertreten. Dieser verdrängt aber keinen der anderen Eindrücke, welche die Gegenstände auf den äusseren oder inneren Sinn hervorzubringen fähig sind, sondern wird ihr Träger und fügt in seiner individuellen, mit der des Gegenstandes, und zwar gerade nach der Art, wie ihn die individuelle Empfindungsweise des Sprechenden auffasst, zusammenhangenden Beschaffenheit einen neuen bezeichnenden Eindruck hinzu. . . . (p. 53) Keine Gattung der Vorstellungen kann als ein bloss empfangendes Beschauen eines schon vorhandenen Gegenstandes betrachtet werden. Die Thätigkeit der Sinne muss sich mit der inneren Handlung des Geistes synthetisch verbinden und aus dieser Verbindung reisst sich die Vorstellung los, wird der subjectiven Kraft gegenüber, zum Object, und kehrt, als solches auf [sic] neue wahrgenommen, in jene zurück. Hierzu aber ist die Sprache unentbehrlich. Denn indem in ihr das geistige Streben sich Bahn durch die Lippen bricht, kehrt das Erzeugniss desselben zum eignen Ohre zurück. Die Vorstellung wird also in wirkliche Objectivität hinübersetzt. . . ."

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nite arrangement of the prelinguistic psychical material into definite groups, the coherence of each group being secured by labelling each with one definite sound-tag; or again we may have a breaking up of a prelinguistic psychical compound into component elements, in which case the relative independence of such elements is secured by providing each with a definite symbol. So by the word "apple" a large variety of visual, tactile, olfactory, and gustatory sensations are united and stamped as a unit, while in the word "red" an element of the compound sensation produced by some object of definite color and size and shape is partially analyzed, the sensation of color being separated from the rest and endowed with a lasting independence by being attached to the verbal symbol "red." This arrangement, then, which shows itself not only in the "words" of a language, but with equal clearness in its grammatical structure, to be lasting, demands the assistance of a set of acoustic symbols, and these we call speech. In them this psychical activity is externally reflected, in such a way as to become manifest to the senses, and through the senses to the mind itself; "no kind of perception can be regarded as the merely receptive contemplation of an existing object. The activity of the senses must join the activity of the mind, and from this synthetic union the percept arises, becomes itself an object, as contrasted with the subjective force which created it, and, perceived by the senses, returns back to it. For this purpose speech is indispensable. For when the mental activity finds its outlet through the lips, its product returns through the ear. . . ." ¹ The indi-

¹ Steinthal expresses the same thought more briefly: "*Quum enim homines loquuntur aliquid duplicis et contrariae naturae faciunt: rem in*

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vidual character of each language depends upon this "inner speech-form," and all lexical and grammatical differences of languages are thus seen to be the result and outward indication of the psychical difference between those who speak them. Humboldt's discovery of the "inner speech-form" opens up the whole important problem of the relation of speech to thought, and an investigation of this problem in its various aspects forms the burden of most of Steinthal's work. "It is necessary to get rid of the false opinion (to which the vague and half-true belief that language is an organism has sometimes led) which regards language as a physiological movement of the body like breathing, trembling, twitching. On the contrary, *language is a psychical activity*, and the belief just mentioned is true only in so far as the element of purpose must not enter into our explanation." And again: "For the grammarian words are not independent beings whose deeds and sufferings he has to register and to classify, but they are [signs of] psychical processes, the course, conditions, and results of which he must investigate."¹ As a psychologist,

aliquid cogitatum mutant et cogitata ita reprimunt quae sub sensum cadant." (De Pronomine Relativo [1847], p. 2.)

¹ Steinthal, (Assimilation und Attraction) *Zt. f. Völkerpsych. und Sprachwissenschaft*, I (1860), p. 101. "Wenn es der Erklärung der Attraction nachtheilig war vorzugsweise oder ausschliesslich ihren rhetorischen Zweck und die *bewusste Absicht des Schriftstellers* zu berücksichtigen, so behielt man andererseits mit dem Worte Attraction auch noch einen anderen Fehler aus alter Zeit bei, der einen ganz entgegengesetzten Character hat. Auf der einen Seite liess man den Schriftsteller mit Worten und Formen frei schalten und walten, dieselben stellen und schieben und verschieben, wie Figuren auf dem Schachbrett; auf der anderen Seite aber schrieb man den Worten *Kräfte* und *Thätigkeiten* zu, und wie man sagte, dass ein Wort das andere regiere, so legte man ihm nun auch eine gewisse Attractionskraft bei, mit welcher es, wie vermöge eines gewissen Magnetismus ein anderes Wort anzieht, vor und rückwärts greifend. Das ist nun aber eine ganz haltlose und für die wahre Auffas-

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Steinthal belongs to the school of Herbart,¹ who, in his *Lehrbuch der Psychologie* (1816) and the larger *Psychologie als Wissenschaft* (1824-25), had begun to base psychology upon experience, and "by his substitution of single elements (sensations and ideas) as the foundation of psychical phenomena in place of the psychical faculties still retained by Kant, by his demand that psychical phenomena should be explained according to the definite laws of their reciprocal action" (corresponding to the association theory of the English psychologists), was then the most prominent representative of empirical psychology. That Steinthal was in no way slavishly dependent upon Herbart may be easily gathered from Misteli's² comparison of Herbart's and Steinthal's views on language.

- 35 While Steinthal may be regarded as a psychologist who turned linguist, the development of linguistic studies at this very time was forcing philologists to turn

sung der Sache verderbliche Fiction; man hat, um eine wahrgenommene Erscheinung zu erklären, eine Kraft erdichtet, welche dieselbe machen sollte. Solche mythische Kräfte überall aufzulösen, ist nun Aufgabe der Wissenschaft. Attraction ist nicht eine Handlung welche das Wort übt, und von ihr zu reden ist überhaupt nur etwa in derselben Weise erlaubt, wie man vom Auf- und Untergang der Sonne spricht . . . Für die Grammatik sind die Worte keine selbstständigen Wesen, deren Thaten und Leiden sie zu registriren und zu schematisiren hätte, sondern es sind *psychische Processe*, nach ihren Bedingungen und Erfolgen und ihrem ganzen Verlaufe zu beobachten."

¹ Cf. H. Höffding's *History of Modern Philosophy* (English transl. by Meyer, 1900), II, p. 255.

² "Herbart's Sprachauffassung in Zusammenhange seines Systems" in *Zt. f. Völkerpsych. u. Sprachwiss.*, XII (1880), p. 407-450. — The influence of Herbart on Paul is very noticeable, especially in the Introduction and first chapter of his *Principien*. Cf. Wundt, *Philosoph. Studien*, IV, p. 1 ff. [The theory of unconscious psychical processes is now modified by Paul, who substitutes in the third edition (e. g. p. 23, § 12) "ohne klares Bewusstsein" for "unbewusst" of the second edition; cf. Wundt, *Physiol. Psychol.*, II, p. 263; Jodl, *Lehrb. d. Psychol.*, p. 462.]

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toward psychology. Two things especially have contributed to the production of this effect: first, the employment of analogy as a methodological principle, and, second, the first beginnings of what we now term semantics.

In 1867 Whitney, in his *Language and the Study of Language*,¹ which is an expansion of a course of lectures delivered during the month of March, 1864, at the Smithsonian Institution in Washington, and again before the Lowell Institute in Boston, called attention to the "tendency toward extension of prevailing analogies beyond their historically correct limits" as an important factor in linguistic changes, illustrating it among other things by the extension of the genitival *-s* in Modern English and by the transition of "irregular" (strong) verbs into the "regular" (weak) conjugation, "the same tendency which shows itself so noticeably now in every child who learns the English language, inclining him to say *I bringed, I goed, I seed*," "or else, perhaps, remembering *I sang* from *I sing*, it says *I brang*."

About the same time Scherer,² in Germany, frequently

¹ P. 27, 82, and 85. — Cf. Misteli, *Zt. f. Völkerpsych. und Sprachwiss.*, XI (1880), p. 367.

² Scherer, *Zur Geschichte der Deutschen Sprache* (1868). See Index, p. 480, s. v. "Formübertragung." And compare the following passages: p. 177. (Ä propos of the extension of the μ -conjugation:) "Es wäre sehr verdienstlich, wenn jemand solches Aufdrängen, solche Formübertragung oder Wirkung der 'falschen Analogie' einmal im allgemeinsten Zusammenhange erörterte und namentlich die Einschränkungen festzustellen suchte, innerhalb deren dieser Vorgang sich halten muss . . ." To which is added, p. 473 (in the Nachträge): "Als eine Regel, die für viele Fälle ausreicht lässt sich vorläufig hinstellen: Wenn eine Form *a* es über eine Form *b* davonträgt und sie verdrängt, so haben *a* und *b* ein Element *a* gemeinsam, das sie von ähnlichen und zunächst verwandten Formen unterscheidet; die thatsächliche Übermacht von *a* aber beruht auf der Häufigkeit des Gebrauches. Man kann um es genau zu nehmen, Flexionsübertragung, Suffixübertragung (unter diese Rubrik gehören die

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employed the same principle; in his *Zur Geschichte der deutschen Sprache* (1868) his appreciation of its great importance makes him wish for a comprehensive study of the analogical interference of one form with another, in order to determine the limitations within which analogy operates, and in a supplementary note he ventures a psychological explanation of the analogical process: "If a form A is victorious over another form, B, and crowds it out, then A and B must have a common element, *a*, which distinguishes them from other related forms [in modern terms: Analogy presupposes association]. But the fact that it is A which proves victorious is due to its greater frequency of use."

When, under the leadership of Leskien,¹ the neogrammarians took the last, decisive step² and forbade all and every exception to phonetic law, the necessary corollary to the belief in "*mechanical* sound laws" which operated without exceptions was the assumption of the

meisten der beliebten Identificirungen lautgesetzlich unvereinbarer Suffixe), Stammübertragung und Stammumbildung unterscheiden." (P. 392) "Eine vollständige Geschichte der Formübertragungen und Entstellungen in der Pronominalflexion selbst und in ihrem Verhältniss zur Substantivflexion wäre von grossem Interesse." Cf. also Scherer, *Die Deutsche Sprache* (1860), p. 60.

¹ Die Declination im Slavisch-Litauischen und Germanischen (vol. XIX of the *Preisschriften der Fürstlich Jablonowskischen Gesellschaft*, 1876), p. xxviii. — The literature of the early neogrammarian methodology is given in the note on p. xiii. of Osthoff and Brugmann's *Morphologische Untersuch.*, I (1878).

² Scherer, whose strict regard for phonetic laws appears from the passages collected by Johannes Schmidt (Kuhn's *Zt.* XXVIII [1887], p. 303, and XXXII [1893], p. 419), seems to have permitted exceptions only "in case of the most pressing need." Arguing against Curtius' connection of *ποτλ* and *πορλ*, he says (*Zur Gesch. d. deut. Sprache* [1868], p. 306 note): "Ohne die dringendste Noth wollen wir die Lautgesetze doch nicht ausser Acht lassen. Diese Noth träte ein, wenn sich für eine unregelmässige Nebenform absolut keine selbständige Anknüpfung fände."

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psychological origin of many phonetic developments.¹ A form like the plural ending *-μεθα*² could no longer be derived, by the assumption of sporadic "attenuation" of *σθ* to *θ*, from *-μεσθα*, but the latter form, it was now psychologically explained, owed its *σ* to the endings *-σθα*, *-σθε*, *-σθον*, etc., with which it had been analogically connected. Although there are psychological processes producing sound change which do not fall under the head of analogy, yet those which do are numerous enough to make the introduction of analogy as a methodological principle an important step in the psychological interpretation of linguistic facts.

A peculiar one-sidedness of the neo-grammarian movement must be noted here. It is the quiet acceptance of all regular development, *e. g.*, of a sound change regularly exhibited by a large mass of words, without inquiry into its cause, when at the same time a causal explanation for any irregularity was demanded. The Attic change of an (Ionic) *η* to *ā* after *ρ*, *ι*, *ε*, *υ* was accepted without further explanation because the change is universal; but the *η* in *χορηγός* required causal explanation (due to analogy of *στρατηγός*). In the discussion which centred around the term "phonetic law" this discrimination in favor of majority changes, and their acceptance without genetic explanation, and against minority changes for which such explanation was demanded, has tended to obscure the true issue and retarded a settlement, as will appear hereafter.³

36 The study of semantics, to which reference was made

¹ Osthoff and Brugmann distinctly say (*Morph. Untersuch.*, I, p. xiii): "Aller lautwandel, soweit er mechanisch vor sich geht, vollzieht sich nach ausnahmslosen gesetzen."

² Brugmann, *Morph. Untersuch.*, I, p. 156, note.

³ Cf. below, Lecture IV.

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above, has its beginnings in lexicography. In his Lectures on the Latin Language (delivered for the last time during the winter term of 1826-27, and published much later, in 1839, by his pupil Haase) K. Reisig had called attention to the importance of a scientific and systematic study of the meanings of words and devoted about a dozen pages¹ to a few suggestions concerning "the principles of semantic development," in which he states, among other things, that "the basis of the semantic development of words is the association of related ideas." His premature death, perhaps, prevented Reisig from penetrating farther into the subject which he had thus opened.² It was reserved for his pupil, Agathon

¹ K. Reisig's *Vorlesungen über lateinische Sprachwissenschaft* (1839), p. 18, § 20. "Das Wort betrachten wir in seiner Gestalt nach gewissen Grundsätzen, und daraus entsteht 1) die *Etymologie*, Formenlehre; demnach seine Verbindungen mit anderen Wörtern, und dies bildet 2) die *Syntax*. Das Wort hat aber noch eine andere Eigenschaft an sich, die *Bedeutung*; es giebt eine Gattung von Wörtern, die in jeder Art der Rede in Anspruch genommen werden, deren Bedeutung aber weder in der Etymologie erörtert werden kann, noch auch in der Syntax Platz findet, weil ihre Bedeutung weder von etymologischen noch von syntaktischen Regeln abhängig ist. Lassen sich nun gewisse Grundsätze aufstellen, welche von einer Menge von Wörtern die Entwicklung ihrer Bedeutung und ihrer Anwendung zeigen, so entsteht noch ein integrierender Theil der Grammatik nämlich 3) die *Bedeutungslehre*, *Semasiologie*."

P. 286-307 are devoted to Semasiology: 286-298 "Grundsätze für die Entwicklung der Bedeutung" and 298-307 "Grundsätze über die Wahl der Wörter nach ihrer Bedeutung." (This second half is purely stylistic.) P. 286, § 171 "Die Entfaltung der Gedankenreihe in Betreff der Bedeutung der Wörter ist ein anziehendes, anmuthiges Geschäft . . . Die Grundlagen der Ideenentwicklung in den Wörtern ist die Gedankenassociation in der Gemeinschaft der Vorstellungen."

² The following passage from W. v. Schlegel, *Réflexions*, etc. (1832), p. 42, is worth quoting: Les articles concernant les termes *polyseman-tiques* sont particulièrement peu satisfaisans: la rédaction de ces sortes d'articles est pourtant la pierre de touche d'un bon dictionnaire. Il faut d'abord chercher la signification primitive ou fondamentale du mot, à laquelle toutes les autres doivent être ramenées comme à leur centre

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Benary (1834), to leave the purely lexicographical aspect of the semantic question and to give to it a much wider and at the same time profounder meaning. He was the first to distinguish clearly between the *formal* and the *semantic* side of a word, and this not only with reference to the word as a whole, but he applied this same distinction to the grammatical elements of which the word is made up, such as inflectional and formative affixes. These also, he points out, deserve a separate treatment from the point of view of their meaning, which should be fuller and more systematic than that which is now very grudgingly permitted them, tucked away in some syntactical paragraph where it is wholly out of place.¹

commun; il faut observer l'affinité des idées et retracer le passage graduel et nuancé de l'une à l'autre; il faut expliquer les transitions brusques et inattendues: ce sont pour la plupart des expressions originellement figurées et devenues peu à peu des mots propres, lorsque la métaphore ou l'allusion qui leur avait donné naissance a été oblitérée par le temps. Quelquefois une seule série ne suffit pas: il faut revenir plusieurs fois à la tige commune, pour suivre les ramifications divergentes.

¹ Benary in *Jahrbücher f. wissenschaftliche Kritik*, Juli 1834, col. 66 ff.: "Das Wort erscheint in der Sprache als Ausdruck des Gedankens und wie sein Ursprung rein der Form nach in der Laut- und Sylbenlehre gezeigt wird, so wird seine Genesis als Bedeutungsträger in der Bedeutungslehre und endlich sein Begriff als Darstellung des vollständigen Gedankens in der Syntax dargethan. So zerfällt uns die ganze Grammatik in drei Theile.

I. Das Wort als Form:

- (a) die Elementarlehre (Laut — Sylbe — Wort).
- (b) die Flexionslehre.
- (c) die Ableitungs- und Compositionslehre, sämmtlich nur *formell*, die Lautveränderungen und Erweiterungen, abgesehen von ihrer Geltung und ihrem Werthe als Begriffsträger.

II. Die Bedeutungslehre:

- (a) Die Wurzel als allgemeines, unentwickeltes, in ihrer Bewegung in sich (die verschiedenen Bedeutungen der Wurzel) und in ihrem Fortgang zum System des Wortes:
 - 1. Das Begriffswort (als Adjectivum, Substantivum, Verbum).

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Here, then, is the germ of a healthy reaction against the one-sided formal treatment of Bopp and his followers. Its growth has been slow, and only during the last decades has this side of the question begun to receive adequate treatment.¹ But wherever these problems were touched at all they demanded a psychological solution.

37 The same is finally true of syntax when freed from the

2. Das Formwort (als Pronomen, Zahlwort, Partikel).

(b) Die grammatische Form:

1. Die Verhältnisse der Dinge zu einander (Genus, Casus, Numerus).

2. Die Verhältnisse der Eigenschaften (die Gradation).

3. Die Verhältnisse der Handlung (die Zeit, die Modi, die Genera).

(c) die Ableitung und Composition.

III. Das Wort als Gedanke (Syntaxis).

(a) der einfache Satz — Taxis.

(b) der Nebensatz — Parataxis.

(c) die Periode — Syntaxis.

Von den gewöhnlichen besseren Eintheilungen . . . weichen wir also darin ab, dass wir einen zweiten Theil der Gesamtgrammatik in der Bedeutungslehre vindiciren. Dies hat einst mein unvergesslicher Lehrer Reisig in seinen Vorlesungen über lateinische Sprachwissenschaft gethan, doch nur ahnend; denn dass er nur den ganz äusserlichen Theil der Synonymik (diese fällt ihrer grammatischen, nicht lexicalischen Seite nach bei uns in den Fortgang der Wurzel zum System des Wortes) und einige ganz specielle Fälle in diesen Theil zog, ohne wie wir das ganze grammatische Feld in ihr Gebiet in vollständiger vernünftiger Gliederung aufzunehmen, das wissen mit mir seine ehemaligen zahlreichen Zuhörer; den Mangel fühlte er, auszufüllen war ihm — der gerade in der regsten Zeit der Entwicklung der Sprachwissenschaft starb — nicht vergönnt. Die Wichtigkeit dieses Theiles macht sich aber vor allem bei Behandlung der Syntax kund. Hier werden gewöhnlich die Formen, mit Voraussetzung der Kenntniss ihrer Bedeutung, ohne weiteres aufgenommen, oder diese nachträglich an Orten abgehandelt wo sie ihrer Natur nach fremd und störend sind, wie etwa die Bedeutung des Coniunctivi bei der Lehre von den hypothetischen Sätzen, etc." This extract will show how deeply Benary had penetrated into these problems. The last clauses sound like an anticipation of some parts of Ries' *Was ist Syntax?* (1894).

¹ Cf. Paul, *Sitz. Ber. d. bayer. Akad.* (1894), p. 88; (1897), p. 692.

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tutelage of logic. Syntax has been the last of all departments of grammar to receive psychological treatment; in fact, while since Humboldt's time sporadic attempts to treat syntactical problems psychologically have not been wholly wanting, it is only now beginning to receive it at the hand of the professed syntacticians. Being first, in the time of Bopp, unduly neglected, historical syntax, which was inaugurated by Lange (1852),¹ and comparative syntax, begun by Delbrück and Windisch (1871),² have claimed the attention of scholars; and even Paul, who perhaps more than any one else has been instrumental in gaining recognition for the psychological method³ among philologists, had no chapter on syntax in the first edition (1880) of his *Principien*, a lacuna filled in the second edition (1886) by two important chapters, while Ziemer⁴ had meanwhile (1882)

¹ In the very important address before the meeting of German philologists at Göttingen in 1852 (*Verhandl. der XIII. Versammlung deut. Philol. etc.* [1853], p. 96 = *Kleine Schriften*, I, p. 39.)

² *Syntaktische Forschungen* (1871-88) in five volumes, forerunners, as it were, to Delbrück's *Vergleichende Syntax* (1893 ff.).

³ The third [improved] edition of Paul's *Principien* appeared in 1898; an English translation was made by H. A. Strong from the second German edition in 1889. This is out of print. It contains a preface by B. I. Wheeler. The "Introduction to the Study of the History of Language by H. A. Strong, W. S. Logeman, and B. I. Wheeler" (1891) is, according to the preface, "an attempt . . . to enable students to grasp the main points of the contents of one of the most important philological works which have been published during the last ten or twenty years. Paul's *Principien der Sprachgeschichte*. — Wundt's *Völkerpsychologie: Die Sprache* (1900), in two volumes, is now the most important contribution to the psychological study of language. Cf. also Wegener's *Untersuchungen über die Grundfragen des Sprachlebens* (1885, an elaboration of two lectures delivered in 1883 and 1884 respectively); and Reichel's *Sprachpsychologische Studien*, 1897. (1. Die deutsche Wortstellung in der Gegenwart. 2. Die deutsche Betonung in der Gegenwart. 3. Sparsamkeit. 4. Begründung der Normalsprache.)

⁴ *Junggrammatische Streifzüge im Gebiete der Syntax* (1882), an enlargement of his 'Programm' (Colberg, 1879).

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made the psychological element in the formation of syntactical constructions the topic of a short monograph. To any one looking over the syntactical literature since then, it will become at once apparent what an important and even dominating part the psychological method is destined to play in further syntactical investigations.¹

- 38 Aside from the psychological aspect of linguistic phenomena the chief importance of the essay with which Steinthal and Lazarus opened their *Zeitschrift für Völkerpsychologie und Sprachwissenschaft* (1860) lies in recognizing the fact that the psychical phenomena which manifest themselves in speech are not wholly identical with those exhibited by the single individual, and in grouping them together with the other similar psychical phenomena, namely, those of belief and custom. True, there are earlier passages which lay stress on the social character of speech, as when Humboldt² said, in 1821, that "speech is not a free product of the individual, but always belongs to the nation as a whole," and elsewhere speaks of "the weakness of the individual against the power of language;"³ moreover the ground for such views had been prepared by the collectivism of the Romanticists to which allusion has been made above (p. 56). But a definite statement we first find in Steinthal⁴ (1855): "In our discussion of speech and grammar . . . we have never left the domain of psychology.

¹ Cf. e. g. Brugmann, *Griech. Gramm.*³ 1900, p. 364, note 1.

² *Ges. Werke*, III, p. 260.

³ *Ges. Werke*, VI, p. 65: "Wenn man bedenkt, wie auf die jedesmalige Generation in einem Volke alles dasjenige bindend einwirkt, was die Sprache desselben alle vorigen Jahrhunderte hindurch erfahren hat, und wie damit nur die Kraft der einzelnen Generation in Berührung tritt, und diese nicht einmal rein . . . so wird klar wie gering eigentlich die Kraft des einzelnen gegen die Macht der Sprache ist."

⁴ *Grammatik, Logik und Psychologie* (1855), p. 388.

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Nor need we do so in discussing the differences of languages. We only leave one department of it, to which to-day, to be sure, psychology is still confined, and pass into another, which belongs no less to psychology, although it has until now only been touched very casually. For the psychology of to-day is *individual*, i. e., its object is the individual soul as it manifests itself generally in every being which possesses a soul, in every man, and, to a certain extent, also in the animal. Now it is the important fate of the human soul not to exist as an independent individual, but to exist in a member of some community, who from the very beginning, both in body and soul, forms part of some people (*Volk*). And for this reason individual psychology strongly demands a supplement, namely, social psychology (*Völkerpsychologie*).¹ By birth every man belongs to some society which materially influences his psychical development. So that the individual cannot be fully comprehended without reference to the community within which he was born and lives." This supplement to the psychology of the individual (without which it must remain one-sided) cannot, however, be found in simple additions dealing with the relation of the individual to the community, but it demands that the community as such and contrasted with the individual should be made the subject of investigation.² "For within the

¹ In the next paragraph he points out that it is hardly possible as yet to speak of "social psychology" as a new science on account of the scantiness of material, and he refers to a few stray suggestions in Herbart's *Psychologie* (Introduction), Carl Ritter's *Erdkunde* (I, p. 19), and an essay by Lazarus in the *Deutsches Museum* for 1851.

² Zt. f. *Völkerpsychol. u. Sprachw.*, I (1860), p. 5. After quoting Herbart (*Lehrb. z. Psychol.*,² § 240) that all psychology which considers man as isolated is one-sided, he continues: "Die Sache ist nun aber damit nicht abgethan, dass man diese Einseitigkeit hinterher durch gewisse

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community there arises a peculiar set of psychical phenomena, which do not really concern man as an individual and do not emanate from him as such. We deal here not so much with conditions *in* man as with conditions *between* men; with phenomena in which he is not directly but indirectly concerned, because he is a part of the whole which experiences them. In brief, we deal with the collective soul which is not identical with the sum total of all the individual souls that make up a social group." It must be stated here, once for all, that neither Lazarus nor Steinthal has for a moment assumed that there existed a substantial substratum for their social *psyche*. In fact, they took pains to forestall the very argument which Paul¹ urges against them along this line: "At first glance the use of the term psychology for the phenomena of the life of a social body . . . might be open to criticism for the reason that we cannot imagine a *psyche* (in the proper sense) of a social body, and that, for this reason, the substance which must be assumed as the substratum of the psychical activity appears to be wanting. But on closer inspection it will readily be seen that a knowledge of the soul,

Zusätze, durch eine gewisse Rücksicht auf die Verhältnisse des Menschen in der Gesellschaft, zu ergänzen sucht; sondern diese Ergänzung ist überhaupt nur erst dann möglich, wenn zuvor der Mensch als gesellschaftliches Wesen, d. h. wenn die menschliche Gesellschaft, also ein ganz anderer Gegenstand als der einzelne Mensch, zum Gegenstande einer besonderen Untersuchung gemacht ist. Denn innerhalb des Menschen-Vereines treten ganz eigenthümliche psychologische Verhältnisse, Ereignisse und Schöpfungen hervor, welche gar nicht den Menschen als Einzelnen betreffen, nicht von ihm als solchen ausgehen. Es sind nicht mehr sowohl Verhältnisse in Menschen, als zwischen Menschen; es sind Schicksale, denen er nicht unmittelbar unterliegt, sondern nur mittelbar, weil er zu einem Ganzen gehört, welches dieselben erfährt. Kurz, es handelt sich um den Geist einer Gesamtheit, der noch verschieden ist von allen zu derselben gehörenden einzelnen Geistern und der sie alle beherrscht."

¹ Principien (3d ed.), § 6, especially p. 11.

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namely, of its substance and quality, is by no means the aim or even the chief task of psychology. This consists in the study of the psychical processes and of their development, *i. e.*, in the discovery of laws according to which the psychical activity of man . . . takes place.”¹ And they proceed then to divide psychology into two parts, namely, “Seelenlehre,” which has to do with the substance and quality of the psyche, and “Geisteslehre,”

¹ Zt. f. Völkerps. und Sprachw., I (1860), p. 27 f. (under the caption : “Der Volksgeist keine Substanz —, aber ein Subject”). “Zunächst könnte die Anwendung des Begriffes der Psychologie auf das Völkerleben, d. h. die Gründung einer solchen Wissenschaft, Zweifel gegen sich dadurch erregen, dass, weil eine Psyche des Volkes im eigentlichen Sinne des Wortes undenkbar ist, die Substanz, welche als Träger der Thätigkeit gedacht werden muss, zu fehlen scheint. Fassen wir aber die Sache näher ins Auge, so leuchtet bald ein, dass die Erkenntniss der Seele, d. h. der Substanz und Qualität derselben, keineswegs das Ziel oder auch nur das Wesentliche der Aufgabe ist, welche die Psychologie zu lösen hat. Vielmehr besteht diese wesentlich in der Darstellung des psychischen Processes und Progresses, also in der Entdeckung der Gesetze, nach denen jede innere Thätigkeit des Menschen . . . vor sich geht, und in der Auf- findung der Ursachen und Bedingungen jedes Fortschrittes und jeder Erhebung in dieser Thätigkeit. Wir könnten deshalb, da man in unserer Sprache fast allgemein und sicher den Unterschied zwischen Seele und Geist darin begreift, das jene eine Substanz, ein reales Etwas, dieser aber mehr die blosse Thätigkeit bedeutet — die Psychologie in Seelenlehre und Geisteslehre unterscheiden, so dass jene, welche mehr das Wesen oder die Substanz und Qualität der Seele an sich betrachtet, eigentlich einen Theil der Metaphysik oder Naturphilosophie, diese aber (die Geisteslehre), welche die Thätigkeiten der Seele und deren Gesetze betrachtet, die eigentliche Psychologie ausmacht. Demgemäss ist leicht ersichtlich, wie von einer Völkerpsychologie, analog der individuellen Psychologie, die Rede sein kann: nämlich als *Volksgeistlehre* in dem eben bezeichneten engeren Sinne.” Could anything be plainer? Similar and equally definite is the statement in Philologie, Geschichte und Psychologie (1864), p. 37, “Da es keine substantielle Volksseele giebt, sondern der Träger des Volksgeistes nur die zum bestimmten Volke gehörigen Individuen sind, etc.” A reference to Waitz (Anthropologie, I, p. 388) is added: “Was als die Begabung und Entwicklung eines Volkes erscheint, ist der Hauptsache nach bedingt von der Wechselwirkung der Individuen.”

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which investigates the psychical activity, its manifestations and their laws. To the former they assign a place in metaphysics, while the latter comprises the "real" (or, as we might better say, "empirical") psychology. Wundt¹ has called attention to this advance of Lazarus and Steinthal beyond their teacher Herbart, and pointed out how in this passage they have practically outlined the position of modern psychology, which, as an empirical² science, has to do with psychical states and processes alone, while questions relating to a soul-substance come before the forum of metaphysics. As soon, therefore, as we confine ourselves to empirical psychology and to the investigation of psychical states and processes (which, of course, never occur without some physical substratum), the question is not whether there exists a soul-substance in either individual or social body, but the vital question is whether there are certain psychical phenomena for the occurrence of which the association

¹ Ueber Ziele und Wege der Völkerpsychologie (Philosoph. Studien, IV, p. 1 ff.); cf. now also Völkerpsychologie: Die Sprache, I, p. 17. It seems to me that the argumentation of Paul in the introduction of his *Principien* is fully met by Wundt's exposition in the two papers just cited. They do not only discuss and rectify some important points in Lazarus and Steinthal's program (prefixed to the first volume of their *Zt. f. Völkerpsych. u. Sprachwiss.*), but they do the same for certain parts of Paul's Introduction, notably regarding his transcendental psychology (§ 4, p. 6) and his conception of psychology as a normative science (§ 1, pp. 2, 3) which makes a "Principienlehre" necessary. Wundt's articles furnish altogether the clearest exposition and criticism of all controversial points to which the assumption of a "Völkerpsychologie" may give rise.

² For the "Actualitätsbegriff der Seele" in empirical psychology, cf. e. g. A. Höfler's *Psychologie* (1897), § 1, p. 1: "Gegenstand der Psychologie: die psychologischen Erscheinungen. . . . Mit den Namen 'Seele,' 'Psyche,' verbindet der gegenwärtige Sprachgebrauch bald die Bedeutung eines *Inbegriffs* psychischer Erscheinungen, bald die eines 'Trägers' psychischer Erscheinungen. Letzterer Begriff, der der 'Seelen-Substanz,' gehört der metaphysischen Psychologie an."

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of a number of individuals is essential, and which must be contrasted, therefore, with those psychological phenomena for which this is not the case. It is not denied that the former (no less than the latter) must always manifest themselves *in* an individual; all that is maintained is, that they are not products of one individual but of many individuals, working together in unintentional social co-operation. The creative power of a social unit is not equal to the sum of the creative power of each of its members taken separately, but exceeds it. Concerning intentional literary collaboration, Brander Matthews¹ once wrote that "when two men have worked together honestly and heartily in the inventing, the developing, the constructing, the writing, and the revising of a book or a play, it is often impossible for either partner to pick out his own share; certain things he may recognize as his own, and certain other things he may credit frankly to his ally; but the rest was the result of the collaboration itself, contributed by both parties together and not by either separately." Exactly the same takes place in all unintentional social co-operation, because all the other members of a community may share at any time the new invention (purposely or unwittingly made) of one of their number.

- 39 The problems of linguistic science present, therefore, two sides, one dealing with the phonetic and semantic development of speech in the individual, the other with the manner in which forms and meanings spread over a definite area and are accepted by a certain community. Of these two aspects the former has received fuller treatment than the latter, because our psychology has been pre-eminently a psychology of the individual rather than of social bodies. But inasmuch as every

¹ With my Friends (1891), p. 2.

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social phenomenon owes its existence not only to individual creation but also to communal acceptance (in fact, it does not become a *social* phenomenon except by such acceptance), it can easily be seen that a proper valuation and understanding of linguistic facts can only be obtained by treating them as social phenomena. There are especially two points which must be viewed in this light. The first is the uniformity and regularity which is so prominent a factor in language.¹ This uniformity is not due to the fact that many independent individuals simultaneously chance to coincide in certain innovations, but it is the result of social imitation or suggestion by which some individual innovations are continually gaining social currency while the majority fail of acceptance. In the discussion of phonetic law this problem will be more fully treated. The second point is the freedom of the individual in his use of language and the influence of language on the individual's mental economy. The individual does not create his language, but he receives in childhood a ready-made set of symbols which he must henceforth use as best he can. And in gradually appropriating these definite symbols during the formative period of his mental life, they are used as a supporting trellis around which the latter grows up. The forms of every language represent certain characteristic groups of associations, relations, emotions; and the child, in learning to use them intelligently, is forced to arrange his mental contents in the same groups in which preceding generations arranged theirs. For this reason language serves as the most important assimilative factor by which minds of new generations are forced into uniformity with those of their ancestors. The social value of language lies in this fact, that it

¹ Cf. the discussion of this point by Wundt, *Philos. Studien*, IV, p. 25 f.

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makes psychical heredity possible. Through physiological heredity ancestral traits can be transmitted to those succeeding generations only which are connected by ties of blood. Through language it is possible for previous generations to affect the mental economy of members of later generations with whom they have no physical connection whatever. In this sense language represents first and foremost *communal* thought, and it becomes only secondarily the vehicle for individual thought, which may often find the limitations of language irksome and the set of symbols which it provides inadequate for its purpose. This conflict between the individual demands and the communal means of expression leads to constant minute semantic changes in the use of the old material in order to adapt it to new usage. But the very fact that each innovation must await the approval and acceptance of the community delays all linguistic change and causes it to proceed by almost imperceptible steps.¹

- 40 Linguistic science, dealing with the dynamic problems of language, presupposes the data of historical grammar. The historical aspect of the facts of grammar is as essential as the historical aspect in every department of civilization, but it is not final, because it offers no clew regarding the connection of the successive facts which it chronicles. Their explanation can only be furnished by psychology. It is the purpose of linguistics to resolve the highly complicated phenomena of language into their component elements and thus to correlate them with the simple psychical phenomena which form the subject of psychological investigation. The particular linguistic phenomenon finds, then, its explanation in the general psychological law. There are no

¹ Cf. Jodl, *Lehrb. d. Psychol.*, p. 593.

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specific laws for language, any more than there are specific laws of art or mythology. But there are general psychological laws which have been deduced from the observation of kindred phenomena of the various departments of intellectual manifestation, and in these an explanation must be sought for each particular fact. As Scherer very truly said in a discussion of the science of history:¹ "History is the science of the life of nations. . . . Nations are the primary objects of our observation, and observation is the first step toward the discovery of laws. The whole national life must be divided into different sections, and the phenomena within each of these must be studied. Classifications of these phenomena, and descriptions of each class, genus, and species, mark the beginnings of our investigation. Questions for their causes and effects will of necessity lead to a union of the various departments of national life. . . . A demand for an explanation of these effects will finally force the investigator to appeal to psychology in order to solve the final problems." Linguistics is the psychological study of the facts of language, as the science of religion is the psychological study of the facts of communal belief, and sociology the psychological study of the facts of communal institutions. So conceived, linguistics is not a separate science, to be contrasted on the one hand with psychology, on the other with descriptive historical grammar, but it forms part of the general field of psychology. Certain facts, either of language, or of belief, or of communal life, present themselves to the observer. To chronicle these and to give them a preliminary classification is the first step of their scientific investigation. To explain their sequence is the

¹ *Zt. f. d. öster Gymnas.*, XVII (1866), p. 264 = *Kleine Schriften*, I, p. 170.

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second step, and, since they are all essentially psychical phenomena, this is the province of psychology. Psychology is the clearing house into which all individual observations made within a limited field are finally passed in order that similar phenomena of different departments may be assembled and correlated. Only through this psychological analysis and the comparison of like elements in the different manifestations of intellectual life the individual fact is seen in its proper perspective and receives its adequate setting and explanation.

- 41 The study of the spoken language will, therefore, derive much help from being combined with the study of kindred phenomena. Of these the language of children has received the greatest attention, upon the principle that as in physiology so here the ontogenetic development in the individual might be considered as an abbreviated repetition of the phylogenetic development in the race.¹ This principle, however, cannot be transferred directly from the physiological facts of embryology to the psychical facts of linguistic development, because language in the child never develops freely, but its natural growth is continually interfered with. When Ament, for instance, speaks of infantile sound changes, he compares the transformations of Louise's first "word" *mama-mama* to *mama* and finally to *mama* with the sound changes which in the course of thousands of years transform the words of a people. But these two transformations have really nothing whatever to do with each other. For Louise's changes are simply due to the clearer perception and more successful imitation of the same model which her nurse continued to speak before her. The three forms are successive stages

¹ Ament, *Die Entwicklung von Sprechen und Denken beim Kinde* (1899). This contains a good historical introduction and bibliography.

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in an attempt to imitate a sound, comparable to the different forms by which a foreign word may be represented in the native idiom.¹

Gesture language differs from both speaking and writing, in that in it the movements themselves serve as symbols and convey meaning, while in speaking and writing different results of such movements (namely, resultant sounds or tracings) form the vehicle of communication. The fullest discussion of gesture languages and their bearing on speech is now found in Wundt's *Völkerpsychologie*.² Writing, on the other hand, has received but very scanty treatment, although it is in most essential respects an exact parallel to speaking.³ In both cases a special motor centre is charged with directing the movements, here of the vocal organs, there of the hand. In both cases these movements are only indirectly concerned in the conveyance of thought. It is therefore to be expected that writing and speaking should show many points of similarity. As a matter of fact the form of handwriting is as characteristic for different nations as is their idiom.⁴ What Preyer calls⁵ the family type of handwriting is comparable to the family type of speech.⁶ As in speaking, so in writing, there is a certain margin within which variations are permitted and unheeded by the hearer or reader, and these variations occur not only in different individuals, but often in the same individual. Preyer discusses at

¹ This was written before I saw Wundt's criticism of Ament's position, *Völkerpsychologie*, *Die Sprache*, I, p. 296, with the note.

² *Die Sprache*, I, p. 131 (with literature).

³ Preyer, *Zur Psychologie des Schreibens* (1895), p. 38: "Das Schreiben selbst ist im buchstäblichen Sinne eine Art Fingersprache."

⁴ Preyer, *Zur Psychologie des Schreibens* (1895), p. 2.

⁵ *Ibid.*, p. 3.

⁶ Passy, in *Phonet. Stud.*, I, p. 19-20.

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some length the use of such polymorphous letters (as *e* and *ε*) by the same writers.¹ Like the phonetic variations, these graphic changes are due to cerebral causes rather than to the writing material or the muscles.² Preyer even alludes to cases of graphic mixture,³ in which, by a kind of associative interference, those, for instance, who work intently and for a long time with figures (like mathematicians) assimilate the form of their letters to the form of somewhat similar figures (as B to 13, gb to 96, etc.). In view of the fact that the movements of the hand in writing are not only less complicated than the movements of the vocal organs in speaking, but also more easily registered, observations touching the changes in the individual's mode of writing as well as in the forms of letters of successive periods should be made which would throw valuable light on similar phonetic variations.

¹ Preyer, *Zur Psych. d. Schreib.*, p. 100.

² *Ibid.*, p. 33-37.

³ *Ibid.*, p. 133.

LECTURE II

ON THE CLASSIFICATION OF SIMILAR SPEECH INTO DIALECTS AND LANGUAGES AND ON THE NATURE OF INFERRED PARENT LAN- GUAGES

- 1 NORMATIVE or didactic grammar sets up a certain standard as correct. This standard¹ is obtained partly by philosophical, chiefly logical, considerations as to the manner in which language ought to meet adequately the demands made upon it, partly by eliminating geographical differences among the "natural" speakers and uniting what is common to most of them, partly by recognizing some one geographical area and its speakers as a model which the rest should imitate, and partly by measuring the correctness of current speech by the standard of a more or less arbitrarily chosen past period, often termed "classical." The first of these methods is well illustrated by the distinction of the Greek grammarians between *ἑλληνισμός*, when defined as equivalent to *ἑρθότης λόγου*, and its opposites *βαρβαρισμός* and *σολοικισμός*, in which the untutored speech betrays itself. This "illogical" or "chance" speech, *εἰκαία συνήθεια*, is sometimes meant by the term *διάλεκτος*, *καθ' ἣν ἕκαστοι ἄνθρωποι διαλέγονται πρὸς ἀλλήλους κατὰ τὴν ἰδίαν συνήθειαν*, as the *Etymologicum Magnum*

¹ Cf. Lersch, *Die Sprachphilosophie der Alten*, etc. (1838), I, p. 8; 48 f.
— On *κοινή* in general, cf. Paul, *Principien*, ch. xxiii.

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defines. The second method leads to the contrast between *κοινὴ λαβὴ* and *διαλεκτός*, which is then defined as *λαβὴ συνηγορούμενη ἐθνικῶς οἷον κατὰ μὲν τὴν Ἀθηναίων· κατὰ δὲ τὴν Ἰάδα· ἡμέρη*. The third may be illustrated by the hegemony of the Attic dialect as the literary language from the beginning of the fourth century before Christ, and by similar developments of the "Kürschische Kanzleisprache" and the Parisian French. The fourth and last is seen in the humanistic apotheosis of the Ciceronian Latinity and the unreasonable contempt of the humanists for the mediæval Latin, which, after all, was the organic development of the speech of Rome.

2. The rise and subsequent preponderance of historical grammar have led in some quarters to a condemnation without reserve of all judicial¹ attitude toward grammar, so that the application of the terms "correct" and "incorrect" to phenomena of speech has been tabooed on the plea that whatever exists by the very fact of its existence is proved to be right: that here at least the majority is always right and the minority always wrong. A clear distinction between didactic and historical grammar obviates the difficulty. It is the aim of the latter to write a history of a given language, *i. e.*, to trace and interpret its development through the various periods. The facts with which it deals are not *sub iudice*, but are *cor adfinitivum*. It is difficult, therefore, to imagine a case when historical grammar would be called upon to pass an opinion as to whether a form or phrase be "cor-

¹ Cf. Noreen, *Om språkkriften* (1888), adapted for German readers by Jönsson in *Indog. Forsch.* I (1892), p. 95, with additions by the translator, p. 202; also the notes to Noreen's article in the Academy, Sept. 26, 1891 = no. 1012, p. 268; *Anzeiger f. deut. Alterthum*, XVIII (1892), p. 171 (by Collitz); *Journal of Germ. Philol.*, I (1897), p. 103; *Brenn. Överspeltet von purete de langue* (*Journal des Savants*, April, 1897).

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rect" or "incorrect." As it would be manifestly absurd for a historian to discuss what Hannibal ought to have done, or to embellish his account of the French Revolution with ethical speculations, in no less degree would it be labor lost if a historical grammar should attempt to point out the directions in which a language ought to have developed, instead of recording and explaining the actual facts. Not to criticise, but to explain and to understand, is the aim of all history. But the historical attitude is not the only one. It has its own proper sphere, but there are other spheres in which another attitude may be permissible or even called for. The judicial attitude, which forms the basis of didactic grammar, having also a sphere of its own, the two run parallel, as it were, and there should be no conflict. If the historical grammarian is a historian, the didactic grammarian resembles the politician. The former deals with the past, and with accomplished facts which no amount of moralizing can change; the latter has to do with the present and future, and takes an active part in shaping it. It must once for all be clearly understood that "the people" can be said to make and change language only in the same sense and in so far as "the people" in a democracy may be said to make and change institutions and laws, or in so far as "society" may be said to set and change fashion. This does not mean that all members are actively engaged in it. In all three cases the majority of the people or of society play a passive and, in Tarde's sense, an imitative part. With them rests merely the privilege of final acceptance or refusal. It is the individual from whom all social alterations start, be they linguistic, or political, or economic. If it be admitted that innovations in language are not "natural growths" but social products, there is no good reason why criticism should

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not be passed on them. If language be primarily a tool, why should we not have a right to fashion it in the same manner in which we fashion social conduct by laws, and with the same partial success? Collitz' "reverence for the historical creations of the people" ("*ehrfurcht vor den geschichtlichen schöpfungen des volksgeistes*") is the proper attitude of the historian, including the historian of language; but it gives us no help as to the position we are to take toward a proposed innovation. The first question, in such a case, is whether it is worth while to take any action whatever, and if this be answered in the affirmative, by what canon we should judge; and for this purpose Noreen's principles appear sound and practical: first, that changes in the existing speech-material by which a distinct gain is not obtained should be discountenanced; second, that, as the chief aim of all speech is to be a means of communicating thought, that form of speech must be deemed best which is most quickly and most clearly understood by the listener, and, at the same time, most easily produced by the speaker. Wrong (because counteracting the very purpose of speech) is therefore everything which is likely to be misunderstood, or cannot be understood at all, or is understood only by some effort, or increases the difficulty of production (as the retention of foreign sounds in naturalized words), or requires special mental labor on the speaker's part by falling outside his customary association groups, or additional physical exertion by unnecessary fulness. And finally, a point neglected by Noreen, as speech is the raw material from which literature is hewn, the aesthetic canons of literature must in a certain measure react upon speech, so that the adoption or rejection of an innovation may depend on purely aesthetic considerations, such as ugliness due to low asso-

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ciations. In this way it may happen that the same phrase at different periods of a language may be literary or vulgar, not because it is inherently so, but because its rank is determined by the company it keeps and the place where it was born.

All such considerations, however, being of an entirely practical kind, lie as much outside the scope of the scientific study of language as practical therapeutics is outside the domain of scientific physiology, and can therefore play no part in the following discussion.

- 3 To the student of scientific grammar the question of dialect¹ presents itself on the one hand as a dynamic, on the other as a static problem. A clear distinction between these two will prove helpful here as elsewhere in avoiding ambiguity. We speak of static problems when the historical object is regarded as stationary, and our task is to examine the qualities exhibited by the object at one given point of time. If such an examination be extended over a number of successive stages, the result of the examination at each stage marks a point through which the object in its development passed. The dynamic view, on the other hand, considers the object as being in continual motion, and the task now is to determine the forces which govern this motion. In the former case we ask *quale sit aut fuerit*, in the latter *quomodo fiat aut factum sit*; similarly in mathematics a curve may be regarded either as a system of discrete points (static view), or as the track of a point moving under the influence of certain forces (dynamic view). We have here, as so often, two different ways of look-

¹ The most important points affecting the scientific study of dialects were brought out in the controversy regarding the boundaries of Romance dialects which is admirably summarized by Horning in *Zt. f. roman. Philol.*, XVII (1893), p. 160 c, f.

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ing at the same thing, both of them being equally justified, both of them being equally necessary for a complete understanding which can only be gained by a combination — but not a confusion — of the descriptive-historical (static) and the explanatory-analytical (dynamic) methods.

The treatment of dialects as a dynamic problem¹ belongs to the discussion of the causes which produce and counteract changes in languages. This aspect of the case has for this reason been disregarded in the following pages, which confine themselves to static questions alone. The question now before us is, What is a dialect? and not, How did dialects arise?

- 4 And, to begin with, how does the concept of a dialect originate and of what character are the elements composing it?

Here, as often, science has adopted a popular concept, for neither term nor idea is the result of scientific investigation but of naïve observation. The naïve person expects every one to talk like himself; if he be an Englishman, he is genuinely surprised to learn that even the children in France speak French, and regards it as one of many defects on their part. Hence the fact that he and his neighbor talk alike fails to arouse his attention or interest. This fact, indeed, is not noted by him until he is confronted by a group of individuals differing from him in their speech. The contrast for the first time makes him realize the identity of speech of himself and the members of his group. This speech-identity of his group he conceives of as the dialect of his group.

The question why there is such a difference does not

¹ Paul's second chapter (*Principien*, § 22 f.) deals chiefly with the dynamic side.

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present itself until much later. Dynamic elements, therefore, originally never enter into the make-up of this concept. They are without value for the immediate purpose for which the concept was created; for the forces to which identity and diversity of speech are due have no direct bearing on the contrast between "like speech" and "unlike speech."

The whole concept rests largely on a static basis. When we term the speech-identity of a certain group its dialect, we combine in this concept a large number of separate judgments passed on the quality of the speech of a certain number of individuals, singling out their speech from that of the rest and claiming likeness for it. The term "dialect" thus denotes, not an object, but a certain relation of the speech of one set of individuals to that of another set. For this reason it is neither independent nor constant, but its meaning varies as the relation varies which it indicates. Those who do not object to mathematical phraseology may define the term "dialect" (D) as a function (F) of the relation of one speech-group (s_1) to another speech-group (s_2): $D = F(s_1 : s_2)$. So understood, a dialect cannot be said to grow or to develop, for it represents the classification of the speech of certain individuals at some one definite point of time, this classification being based on the identity and diversity, respectively, of the language of these individuals.

- 5 If the concept of dialect were the result of scientific considerations it would rest upon a purely static basis and be thoroughly homogeneous. But being of popular origin, there is, as in many concepts of this class, an admixture of foreign elements, which are neither static nor yet dynamic; elements, in fact, which are in no way inherent in the object itself, but connected with it by

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external ties of temporal or local contiguity. I propose to call these elements "associative elements." Especially where the other elements are weak, indistinct, and insufficient to produce a sufficiently clear concept, the latter will be found supported, as it were, by a framework of such associative elements. So elements of the percept "lamp" may associatively enter into the concept "light," or those of "a court of law" into that of "justice." For practical purposes this associative admixture causes little or no inconvenience, because the total picture is sufficiently definite. When, however, these same terms are used for scientific purposes, the heterogeneous character of their composition gives rise to much ambiguity and, consequently, to controversy. In this case it becomes a matter of importance to distinguish between the various elements which make up the concept, especially with a view to remove the dangerous associative elements.

Now speech is indissolubly linked to the speaking individual. And, consequently, wholly heterogeneous elements associatively enter into our concept, which, for want of a better term, might be called "ethnological."

After the contrast of speech of two groups *A* and *B* had been noted and found expression in the formation of the concepts "*A*-dialect" and "*B*-dialect," it became evident that these dialectal groups corresponded to certain political groups. And the more normal and primitive the conditions, the closer must have been the similarity between these groups, the stronger, therefore, also the associative tie by which they were held together. The inevitable result was a fusion in which elements of one concept passed over into the other. Thus the concept of a dialect, which arose from the necessity of marking the relation of a certain kind of speech to an-

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other kind of speech, by this admixture of ethnological elements departs somewhat from its original connotation and comes to be used not only with reference to a certain relation existing between two kinds of speech, but also denoting a given speech as characteristic of a given political group; and thus part of its purely abstract character is lost. From being a purely linguistic term it has been turned into a term which is partly ethnological (or political) and partly linguistic. Where the dialectal groups chance to coincide with the political groups there are no bad results. But as there is no necessity whatever for a parallel development along ethnological (political) and linguistic lines, it is easily seen that two such meanings cannot safely be combined in the same term.

- 6 After we have thus determined the character of the elements of which the popular concept of a dialect is composed, we must turn to examine somewhat minutely the exact manner of procedure in the formation of this concept.

The knowledge which we obtain concerning speech is either subjective or objective.

The knowledge which is based upon the direct acoustic sense-impressions conveyed to our brain by the speech-sounds I term subjective.

Objective knowledge of speech, on the other hand, is based on a direct examination of the stimuli producing our sensations.

Neither one of these two methods can rightly claim a superiority over the other. Both alike are empirical. They differ only in that the objects of investigation differ. In the former case we examine sensations, in the latter case stimuli. Their results, therefore, can never be said to conflict. For, if the results obtained

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by one method are not like those obtained by means of the other, the diversity merely shows that sensation and stimulus are two different things.

- 7 In the naïve observation which formed the concept of a dialect the objective method played no part. It was formed wholly subjectively, *i. e.*, it is based on sensations only, not on a knowledge of the stimuli which gave rise to these sensations.

Such subjective knowledge is characterized by the following qualities. In the first place our sensations are but an imperfect and not wholly trustworthy record of the stimuli which cause them. This is partly due to the fact that our organs of sense are of moderate sensitiveness. As a consequence certain stimuli are not perceived at all; witness, for instance, the upper and lower limit for audible tones. In the same manner variations of a stimulus within certain bounds are not discovered,¹ so that, for instance, if a weight of 270 g. be put upon one supported hand, a weight of $270 \times \frac{4}{3} = 360$ g. must be placed on the other hand to insure the realization of a difference in weight, while two weights of 270 g. and 300 g. so placed would not be felt at all to differ in weight (Weber's law).

Again we are subject to deception² by our senses, either because our sensations actually deceive us or because we misinterpret what they correctly conveyed. A large number of optical illusions are easily recalled to illustrate this point. And finally the accuracy of our subjective observation is impaired, because every percept which newly enters our sensorium not only calls up the memory of a like percept previously experienced, but is

¹ Cf. e. g. Höfler, *Psychologie* (1897), p. 137. Rousselot, *Modifications*, p. 3 (*in fine*).

² Cf. Höfler, *Psychologie* (1897), p. 216.

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assimilated¹ with it, so that an actually existing deficiency in the last will probably escape notice because it is supplied from the memory of all the previous ones. It is thus that we fail to detect misprints, or slight errors of speech, in the same way in which we supply from memory to the visual suggestion of the stage setting those additional sensations which give it reality. We usually hear and see not what is actually spoken or shown, but what, according to our experience, ought to be spoken or shown.

As, for these reasons, our subjective observation lacks faithfulness, so it also lacks uniformity. For the degree of accuracy depends on two things: first, on practice,² as appears in judging distances, weights, the intervals between musical notes, so that, according to Weber's experiments, some persons of great practice in drawing were able to detect a difference in the length of two lines, the proportion of which was as 50 to 51 or even as 100 to 101, while for others to assure detection the difference between the two lines must not fall below $\frac{1}{25}$ of their length. In the second place, accuracy of observation depends on attention, which, in turn, is proportionate to our interest.³ This is of especial importance

¹ Cf. Wundt, *Logik*, I (2d ed.), p. 17 ff., on "assimilation" and "complication."

² Cf. Höfler, *Psychologie* (1897), p. 142.

³ "To discern likeness amidst diversity," says George Eliot very truly (*Impressions of Theophrastus Such*, XVIII, p. 202), "it is well known, does not require so fine a mental edge as the discerning of diversity amidst general sameness." And similarly Gumpłowicz (*Rassenkampf*, p. 187) says: "Auch der Umstand, dass das menschliche Auge sich erst lange üben muss, um Verschiedenheiten menschlicher Typen zu unterscheiden, trägt viel dazu bei, dass wir oft Rassen- und Stammeseinheit dort wahrzunehmen glauben, wo sie thatsächlich nicht existirt. Für das ungeübte Auge des Europaeers sind alle Bewohner Chinas ein Menschenschlag," and in his *Grundzüge der Sociologie*, p. 89, he quotes Passavant, who in his *Craniologische Untersuchungen der Neger und Negervölker* speaks of the

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where, as in speaking, a complex object (the spoken word) can be observed for a short time only. As it is possible to attend to only one thing at a time, a short observation-time will necessarily prevent all qualities of the object from being equally attended to. Equally noteworthy is the fact that our attention is centred on the meaning of a phrase and not on its form.

From this it appears that in subjectively forming the concept of a dialect we may *à priori* assume —

(a) That certain stimuli, though present, were disregarded because they were not perceived.

(b) That the ratio of two or more sensations permits no direct inference as to the ratio of the corresponding stimuli.

(c) That the results must vary in direct proportion to both practice and attention of the observer.

By this method the naïve observer classifies the speech of the individuals surrounding him, and, as we saw above, by a *μετάβασις* into the ethnological *γένος*, these individuals themselves. The speech which is like his he groups into one class; the speech which is different from his into a second class. As in all classification, he thus simplifies the comprehension of a large number of individual objects. Like all generic names, the name of a dialect does not stand for any perceptual object, but expresses a peculiar relation of a series of perceptual objects. It stands, not for a sense-percept, but for the particular manner in which we have viewed and grouped a number of sense-percepts.

difficulty in keeping apart the physiognomies of the negroes: "Anfänglich schienen alle dasselbe Gesicht zu haben." In a similar way objectively different sounds are often perceived as identical, cf. Paul's *Principien*, p. 51, end of § 36; Siever's *Grundzüge der Phonetik* (4th ed.), p. 248; Wechssler, *Forschungen zur Roman. Philol.* (Festg. f. Suchier), 1900, p. 370 f.

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8 Two ways are open for such classification:

I. We may begin by tracing a certain system of boundary lines within which we include kindred objects. This method is inconvenient whenever the objects to be classified are not sharply contrasted but gradually pass one into the other, so that it becomes impossible to fix upon a definite line of demarcation. Such gradual transition we have in speech, as in many other instances, and it has led experimental investigators like Tourtoulon and J. Simon to substitute an intermediary zone (*zone intermédiaire*) for a divisional line (*limite, barrière dialectale*).¹ In view of the fact that no two kinds of speech can come into continued contact without affecting one another and producing along the peripheral line of contact a fusion and mixture, this result was to be expected. It is also at once apparent that these divisional zones are not necessarily constant, but may shift in the course of time.² The reason for this is twofold.³ Either the dialect extends because those who originally speak it expand and drive back their neighbors (physical expansion), or a dialect spreads because those neighbors who originally had a dialect of their own are willing to renounce it; in other words, because the speakers of the growing dialect are, for purely political, social, and economic reasons, successful in commanding imitation and acceptance of the peculiarities of their idiom (imitative expansion).

¹ Instances of dialectal boundary-lines in *Zt. f. roman. Philol.*, XVIII (1893), p. 162 f., and *Forschungen z. rom. Philol.* (Festgabe f. Suchier), 1900, p. 523, note 1.

² Storm, *Englische Philologie* (2d ed.), p. 49, "Es ist überhaupt ein bisher in der Sprachgeschichte nicht genug beachteter Umstand, dass sich die Grenzen der sprachlichen Gebiete oft verrücken."

³ Illustrations e. g. in Zimmerli's *Die deutschfranzösische Sprachgrenze in der Schweiz* (1891-99), three vols.

- 9 II. But instead of starting from the periphery, we may also select a centre around which a number of kindred objects are grouped in concentric circles, the radius of these circles being inversely proportional to the degree of similarity with the centre.

If we choose for such a centre one of the many concrete objects which are to be classified, I propose to call this a concrete centre. If, on the other hand, we construct the centre on the basis of the concrete objects, none of them being absolutely identical with it, I will call this an ideal centre.

Let us first examine the manner in which such an ideal centre may be constructed. We must distinguish here between two possibilities:

A. If we classify single qualities expressible in numbers (*e. g.*, weight, distance, etc.), the ideal centre is equal to the mean (either arithmetical or geometric) of these qualitative figures. Around the mean thus obtained the variations may be grouped. And such a classification is of especial interest because certain mathematical theories may be directly brought to bear on it. For Quételet¹ showed, in 1846, that the different variations grouped around such a mean may be regarded as so many fallible measurements of this same mean, and that therefore the Law of the Frequency of Error may be applied to them.² We shall return to this point below.

B. But if we classify, not single qualities, but whole

¹ Quételet, *Lettres sur la théorie des probabilités appliquée aux sciences mor. et polit.* (1846), *Lettre XVIII*, p. 119.

² Cf. on this also Stieda, *Archiv f. Anthropol.*, XIV, 167; Galton, *Proc. Roy. Soc.* (1879), XXIX, 365; McAlister, *ibid.*, p. 367; Galton, *ibid.* (1899), XLV, 135, and the applications by Galton (above), Davenport and Bullard, *Proc. Am. Ac. Arts and Sci.* (1897), XXXII, No. 4, and Brewster, *ibid.*, No. 15.

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objects, we construct our ideal centre in a somewhat different way.

We begin by comparing all objects ($o_1 o_2 \dots o_n$) as to their qualities. It will then appear—

(a) That certain qualities are present in the same degree or manner in all objects (constant qualities).

(b) Certain qualities are present in all objects, but not in the same degree or manner (variable qualities).

(c) Certain qualities are present in some objects and absent in others (variable qualities).

Our ideal centre or type, O , must then be constructed in such a manner that it will contain all qualities enumerated above under (a) and those qualities enumerated under (b) and (c) in the most characteristic manner or degree, by which is meant that manner or degree which will permit the variations as they appear in the concrete objects to be most easily deduced from O .

A comparison of any one concrete object o_x with the ideal centre O will then show that o_x varies from O either in lacking a quality which O has, or in possessing a quality which O lacks, or in possessing a quality in a degree or manner differing from that of O .

The ideal centre constructed in the preceding paragraph has, of course, no perceptual existence. But suppose that after the construction of such an ideal centre it should be found that one of the concrete objects to be classified shows no variation from it, that, *e. g.*, $o_y = O$.

In this case it is plain that we might discard O altogether and substitute o_y in its place. This concrete object o_y would then appear in a double rôle, namely, first, as one of the many concrete objects forming the series $o_1 o_2 \dots o_n$, and second, as ideal centre or type of this series.

In this case, then, the centre or type really does possess

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perceptual existence, and we distinguish it from the ideal type just discussed by calling it a concrete type. Whenever we have to deal with generic terms it is of great importance to determine in each case whether we have to do with an ideal or a concrete type.

This examination will be our next task, and by it we shall find that all dialectal forms are concrete types and therefore possess perceptual existence, while the results of all higher classification beyond these, such as language-forms, are ideal types.

- 10 For this purpose it is necessary to investigate those individual objects which, in the manner discussed above, are fused into the generic concept of a dialect. These elements are, of course, the speech-forms of the various members of the dialectal unit, which may be designated as $U_1 U_2 \dots U_n$. But "speech-form of a member of a dialectal unit" is itself a generic concept. It is based on the sum of momentary utterances ($u_1 u_2 \dots u_n$) of each member, and our attention must therefore be first directed toward these momentary utterances.

The basis for any given momentary utterance (u) of an individual is a certain psycho-physical disposition or diathesis Δ .¹ In this respect language does not differ from any other movement. As the expressive movement of a gesture affects our sight, so the expressive movement which gives rise to the spoken word affects our hearing. As a repeated gesture is not the same as the first original gesture, so the repeated utterance is not the same as the first original utterance. Neither the gesture nor utterance has a latent existence during

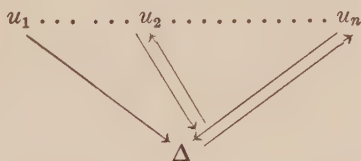
¹ For functional disposition cf. Wundt, *Phys. Psych.*, II, 263, 473; Jerusalem, *Urtheilsfunktion*, p. 4. Paul's *Prinzipien*, § 12, p. 23, must be revised accordingly.

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the interval; but the original gesture or utterance on the one hand, and the repeated gesture or utterance on the other hand, are linked together, not directly, but indirectly by the psycho-physical diathesis of which they are respectively the results. This diathesis remains; its results absolutely vanish. Consequently the repeated momentary utterances do not exist independently of each other, but as effects of their respective psycho-physical diathesis; so that, as long as this diathesis remains the same, the utterances will remain so also.

But while we may thus speak of repeated utterances as results of a given diathesis, it is conversely true that this diathesis itself is in turn the product of all the speech movements which have gone before. For the strength of the diathesis depends on practice. The constancy of a diathesis is proportionate to the number of repetitions of the movement, and the probability that a given movement will be performed in a given way is the stronger the oftener such movement has been so performed.

The first utterance, u_1 , creates a weak diathesis, Δ , on account of which a second utterance, u_2 , will be similar to u_1 ; but, like every subsequent utterance, u_2 will react on Δ and strengthen it. In the adult, therefore, the diathesis, under normal conditions, must be constant, and the utterances belonging to it alike.



(Because Δ is of increasing stability, $u_1 = u_2 = \dots u_n$.)

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This stability is borne out by the observations of both Rousselot¹ and Bourdon.² The former states that "the *patois* is formed during infancy, and thereafter it does not undergo any further appreciable changes at least on the phonetic side," while the latter defines the "speech of an individual" as "a complexus of organized actions which by repetition have become habitual."

In order to avoid misunderstanding, it must be borne in mind that in these observations likeness and unlikeness are here understood to have been determined by purely *subjective* methods. It is not denied that variations may exist and could be discovered by an *objective* examination. All that is claimed is, that if such variations exist they are not perceived as such. This, as we have seen above, is partly due to the fact that our senses are not keen enough; partly because we fuse every new sense-percept with the memory of past ones and thus hear what we expect to hear; partly because our attention is directed toward the contents and not toward the form of an utterance; partly because we compare sensations which do not follow each other in quick succession, but the memory of one sensation is separated from the next similar sensation by a longer or shorter interval; and partly for the following reason.

Suppose that we have n variations ($v_1 v_2 \dots v_n$) grouped around the type or mean V . Suppose, further, that of these n variations a few lying close to v_1 and v (*i. e.*, close to either extreme) are sensibly perceptible; but that those variations which lie between v_x



¹ Modifications, p. 163 f.

² Rev. philosophique, XXVI (1888), p. 344

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and v_y are not perceptibly different to the subjective observer from the type V . The Law of the Frequency of Error teaches, then, that of all n variations the greatest number is bunched closely around V . That is, by far the greater percentage of these n variations must fall between v_y and v_x and is therefore sensibly perceived as equal to V . The number of variations, then, which is subjectively perceived as differing from V is in many cases far too weak to act as a disturbing element.

We have seen above that repeated momentary utterances of the same individual are subjectively perceived as alike. If we now form the type U of the whole series of these momentary utterances ($u_1 \dots u_n$), we may, under these conditions, take any u as such a type, and we thus obtain a concrete type:

$$U = u_1 = u_2 = \dots u_n.$$

We may, in other words, take a given momentary utterance of an individual, say u_x , as representative of his average utterance U , because there is an overwhelming probability that the diathesis which gave rise to u_x , and itself was the product of the whole series u_1 to u_n , will produce an u_y and u_z which will be, subjectively, like u_x .

- 11 Having thus determined of what character the average utterance of an individual is, we must now compare the average utterances $U_1 U_2 \dots U_n$ of the various members of a dialectal unit, on which, as we saw above, our concept of a dialect is founded.

Now, at the time when the concept of a dialect was first formed they must have been subjectively alike, for this very likeness was the cause for combining them into a class. And if all U 's were alike, their bases, namely, the respective diatheses ($\Delta_1 \Delta_2 \dots \Delta_n$) of the various

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members of the dialectal group, must have been alike also.

Again, in the case of normal accessions to the dialectal group, namely, by birth, the diathesis of each child was formed by the sum total of its utterances. And these utterances being, consciously and unconsciously, fashioned after the utterances of its surroundings, would naturally produce in each child a diathesis similar to the diatheses around it.

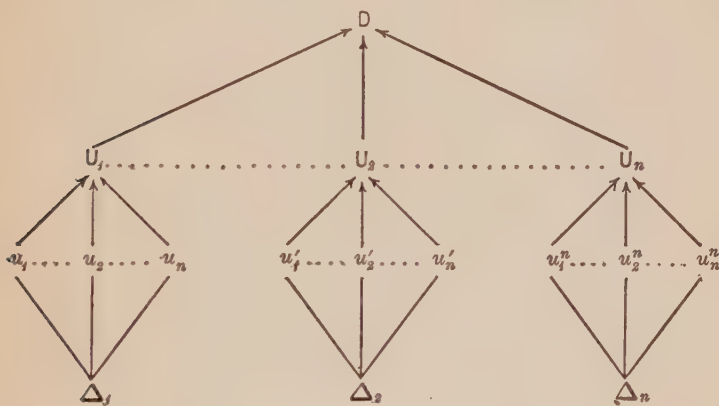
But suppose that, for reasons which need not be discussed here, members of a dialectal group should perceptibly differ from the rest. In this case we may plainly see how the admixture of the heterogeneous ethnological elements (which was pointed out as a source of error above) will tend to vitiate the very connotation which the concept originally possessed. For we have seen that it was devised to denote a likeness, to unite in one class the speech of individuals talking alike. To group together a number of individuals in a dialectal group when their speech differs is plainly a contradiction in terms. And such grouping does, in fact, not rest on the basis on which the original concept of the dialect was formed, but on an entirely different, heterogeneous basis, namely, either sameness of origin or of nationality. The introduction of this double standard is the source of vagueness and ambiguity, to which reference has already been made. And for scientific purposes it is certainly essential to remove from the concept of a dialect these heterogeneous, ethnological elements and confine it most strictly to its original sense. Suppose, then, that new members added to the political group, which, up to that time, had continued to be identical with the dialectal group, do perceptibly differ in speech from the rest. It will simply mean that

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this identity of political group and dialectal group has ceased, and that we now have two (or more) dialectal groups within the same political group.

From these observations it will be apparent that from the very definition of a dialectal group we must assume all U 's of its members to be subjectively alike, from which a corresponding similarity of the respective diatheses ($\Delta_1 \dots \Delta_n$) may be inferred.

The diagram below may serve to represent the relations to a dialectal form D of the diatheses $\Delta_1 \Delta_2 \Delta_n$ of the various members of a dialectal unit; of the average utterance of each member, $U_1 U_2 U_n$; and of the momentary utterances of three such members, namely, $u_1 u_2 u_n$ and $u'_1 u'_2 u'_n$ and $u^n_1 u^n_2 u^n_n$:



Now, if

$$\Delta_1 = \Delta_2 = \Delta_n,$$

then $u_1 = u_2 = u_n = u'_1 = u'_2 = u'_n = u^n_1 = u^n_2 = u^n_n$;

also

$$U_1 = U_2 = U_n;$$

also

$$U_1 = U_2 = U_n = D.$$

And because $U_1 = u_1$, therefore D also $= u_1$.

Or, in other words, any momentary utterance (u) of

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any member of a dialectal unit may be taken as a type of the dialectal utterance. And because any *u* is a concrete, perceptual entity, all dialectal utterances are concrete, perceptual entities.

This reasoning is again in full agreement with the observation of Rousselot:¹ "L'élément réfléchi d'un patois ne varie guère dans un même village. L'on peut donc admettre, que sur ce point le témoignage d'un seul vaut pour tous."

We may, therefore, now define thus: A dialect is the sum of all dialectal utterances. A dialectal utterance is the type of the average (typical) utterances of the members of a dialectal unit. This average utterance is subjectively equal to any one momentary utterance. The type referred to is therefore concrete, and any one momentary utterance of a member of a dialectal group may be taken as representing a dialectal utterance. A dialectal unit is constituted by the speech of all those persons in whose utterances variations are not sensibly perceived or attended to. Subjective uniformity² makes the dialect. A dialectal unit, especially at first, may coincide with an ethnological unit, but such coincidences grow rarer as development continues.

There finally remains to be examined the term "perceptible variation," which has been used throughout, and which we have found to be the one criterion according to which a dialectal group must be determined.

¹ Modifications, p. 162, with the restriction that "quand il s'agit de l'élément qui est encore flottant et de faits qui sont soumis à une évolution actuelle, un témoignage isolé ne peut avoir de portée générale."

² "Subjectively uniform" here corresponds to Paul's "im wesentlichen einheitlich" (Principien, § 22, line 3, p. 35) and "wesentlich gleichmässig" (§ 23, line 5, p. 37). But Paul does not clearly distinguish between objective and subjective observation, nor between the static and dynamic aspect and the different systems of classification based upon them.

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The more exactly we can, therefore, draw the line between those variations which are subjectively perceived and those which are not so perceived, the more sharply shall we be able to distinguish what lies within a dialectal group from that which lies without.

There appears to be but one method of ascertaining whether two utterances are subjectively felt to agree or to differ, and that is to take the testimony of the persons whose sensations form the subject of our inquiry. There is indeed no other way of determining a dialectal group than to take the testimony of the men who are to compose it. For the very reason that the concept of a dialect is formed wholly on a subjective basis, all objective tests are barred out. As Storm¹ has well expressed it, "not absolute differences are here at issue, but perceived differences, for only what is perceived is of importance for the spoken language. . . . Whatever is not noticed by the natives themselves may be disregarded."

The question whether the inhabitants of two villages, A and B, belong to the same dialectal group can only be answered on the testimony of the villagers as to whether they believe they speak alike. They are the court of last resort, from which there is no appeal. And occasionally a nickname or a jest will be *prima facie* evidence of the fact that the villagers of A clearly feel the difference of their speech from that of B. So in the well-known biblical passages, Judges xii. 6 and Matthew xxvi. 73, and in the American parallel to the Hebrew *shiboleth* test which De Vere relates as having happened during the troubles in Kansas: "A ferryman placed a cow at the bank of the river, and on the arrival of a customer was wont to inquire 'whether he saw that thar brute and what he mought call her?'

¹ Engl. Philol. (2d ed.), I, p.17.

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If the applicant 'reckoned' it was a 'cow' he could go on his way rejoicing, but if (betraying his New England origin) he should 'guess' it to be a 'keow,' he must needs seek some other crossing place."¹

Upon such basis the points v_y and v_x in the diagram on p. 104 must be fixed. Whatever lies between them is intra-dialectal; what lies outside is extra-dialectal. These extra-dialectal variations (between v_1 and v_y and between v_x and v_n) have this in common, that they are always sensibly perceived; they differ in the degree in which they affect the ease and clearness with which a given word may be understood. For, as conveyance of ideas is the chief aim of language, everything which stands in the way of an utterance being understood is of the greatest moment. But it is plain that the nearer the centre a perceptible variation lies, the more easily will the utterance containing it be understood; the farther away from the centre it lies, the more will it interfere with the understanding of the utterance, until it absolutely prevents the utterance from being understood.

- 12 If we now continue our classification of speech along the same lines which led to the formation of the concept of a dialect, we may proceed to unite two or more dia-

¹ For the naïve recognition of dialectal peculiarities cf. Darmesteter and Hatzfeld, *Le Seizième Siècle* (4th ed., 1889), p. 203, note (those who pronounced *ou* for *o*, as *chouse* for *chose*, were nicknamed *Ouistes*); Horning, *Zt. f. roman. Philol.*, XVIII (1893), p. 169, note 1, with the quotation from C. This (*Deut. Litteratur Zeit.*, 1888, col. 1220); Wechssler, *Forschungen zur Roman. Philol. Festg. f. Suchier* (1900), p. 377, note, who refers to C. Haag, *Die Mundarten d. oberen Neckar u. Donaulandes* (Programm, Reutlingen, 1898), p. 109 f.; Vietor, *Elemente d. Phonetik* (3d ed., 1894), p. 165, § 76, note 2. A similar verse (*mîn vater snarrt, mîn mutter snarrt, ik rede grade rût*) is current in Tangermünde to ridicule the rolled "r." Cf. also Heidenheim, *Verhandl. d. Versamml. deut. Phil.*, etc. z. Zürich (1887), p. 149, on rabbinical ridicule of Samaritan pronunciation.

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lects into a dialect-family; two or more dialect-families into a language; and two or more languages into a language-family. But whereas a dialect-form, as we have seen, is a concrete type and hence a perceptual entity, the speech-forms of the types enumerated here are ideal types and have no perceptual existence. No one concrete utterance belonging to any of these three classes may, as in the case of a dialect, be taken as a concrete type, because in all such concrete utterances one or more variable elements perceptibly vary. The typical utterance is here similar to all concrete utterances, but identical with none. Remove the perceptible variation,¹ and these classes revert into the dialect whose distinguishing mark is the imperceptible variation of its variables. The whole may be illustrated by the following diagram, in which the classes are represented as (logical) functions of a series of constant (Latin letters) and variable (Greek letters) elements. The variable elements whose variations are not subjectively perceived are enclosed in brackets.

		VARIABLE ELEMENTS.		
		CONSTANT ELEMENTS.	Variations	Variations
			perceived.	not perceived.
SPEECH-FORM OR	1. Momentary Utterances of a member of a dialectal unit,	$u = F$	(q r s t a b c	[d] [e])
	2. Average Utterance of a member of a dialectal unit,	$U = F$	(q r s t a b c	[d] [ε])
	3. A Dialect,	$D = F$	(q r s t a b c	[δ] [ε])
	4. A Dialect-family,	$D' = F$	(q r s t a b γ	[δ] [ε])
	5. A particular Language,	$L = F$	(q r s t a β γ	[δ] [ε])
	6. A language-family,	$L' = F$	(q r s t a β γ	[δ] [ε])

¹ Perceptibility is the "gewisse Maass" of Paul (p. 22, middle), which variations must reach in order to result in "Dialectspaltung."

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If our reasoning so far be correct, it is apparent that even on subjective examination an insurmountable bar separates language-forms from dialect-forms, for the latter, being subjectively identical with the momentary utterance of a definite person, are perceptual objects, while the former are abstractions, purely classificatory devices. A sentence like "*ā vāla dīr ā kō n ā pā ā lī*" represents (according to Rousset's transcription) what every member of the dialectal community of Cellairemain says when he wants to express the idea that "some would say that there are no wolves." But could any one give the "French" sounds standing for this idea? I do not, of course, use "French" here in the sense of the artificial, literary standard of the High Parisian French. For we use the term "language" not infrequently for the ruling, literary dialect, as when we mean by Greek the literary Attic dialect. If the term "French language" is taken, not in this latter restricted meaning, but in the sense of a class name in which we have used it here throughout, then no "French" combination of sounds can be given which will stand for this idea. We may well enough say of a given form like "*vāla*" that it is French, just as we may say of a definite bullfinch that it is a bird, for in both cases we simply mean that the form "*vāla*" and the particular bullfinch are members respectively of a large group of individuals, which, for convenience' sake, we have accustomed ourselves to group together on account of certain resemblances exhibited by all members. But as little as we can see a bird, just so little can we hear a language-form.

- 13 Two main objections can be made against the classification of forms into dialectal groups, as outlined above, the one on the score of exactness, the other on that of arbitrariness.

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The first charge, if the term "inexactness" is used in a derogatory sense, is not well founded; it implies that all observation ought to be objective. In reality the subjective method is the only one by which we can learn how things impress us, and it is therefore entitled to a place alongside of the former. The difference between the two is, in truth, not so much a matter of "exactness" and lack of it, as of stability and variability of the results obtained, the unvarying results of the objective method being due to the fact that the apparatus by which they are reached is always the same, while in all subjective observations the apparatus varies according to person and time. If we reject the subjective method and use objective tests, then only the single momentary utterance of each separate individual can lay claim to concrete existence. For the keener objective test reveals variations and differences which had remained hidden to the subjective observer. In this case, it is not sufficient to assume with Paul¹ "as many languages as there are individuals," for this "language of the individual" is again merely an abstraction based upon each individual's *momentary utterances*. If, then, for the subjective examiner the dialectal form is the highest perceptual (concrete) entity, while the objective examiner cannot rise above the momentary utterance of the individual without passing from the concrete to the abstract, it finally behooves us to determine if such higher classifications as "dialect-family," "language," rest upon a

¹ When he says (p. 35, § 22), "Wir müssen *eigentlich* so viele Sprachen unterscheiden als es Individuen giebt," it would appear as if he regarded the objective tests as the only permissible ones, and the subjective ones as "improper," while in truth neither is more proper or yields truer results than the other, nor has a dialect-form, subjectively tested, any less perceptual existence (what Paul calls "reale Existenz") than the form of a momentary utterance tested objectively.

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wholly arbitrary basis.¹ This was the main point at issue in the controversy (admirably summarized by Horning) which followed Ascoli's Schizzi franco-provençali (1875), in which he tried to establish a franco-provençal dialect-family.

It must be admitted at once that no proper classification of dialect-families or languages is possible until the single phonetic, lexicographical, and syntactic peculiarities of a whole speech area (*e. g.*, the whole of France) have been geographically traced. Specimens on a large scale of such a "géographie des traits linguistiques isolés" are G. Wenker's Sprachatlas des deutschen Reiches and Gilliéron's similar recent work for France.²

Is any further grouping purely arbitrary, as Meyer asserted with G. Paris, "un travail à peu près complètement perdu"? The answer will be clearer if we distinguish between those classifications which take no cognizance of history, but confine themselves exclusively to the *status praesens*, and those which are able to introduce the historical element. Even if for the moment we view classification as a wholly static problem (leaving the historical aspect aside), the question cannot be answered in the affirmative. True, in all descriptive classification the choice of the variable element which is to form its basis is free, but only relatively so. To make the classification serviceable the basic variable should be of such character that its variations go parallel with the variations of the other variable qualities, because thus the variations of the basic variable are indications of the variations of the whole. The choice of the distinctive features of a dialect-family is, therefore, not wholly arbitrary, and Ascoli is quite right when he

¹ Paul's *Principien*, p. 35-36.

² J. Gilliéron and E. Edmont, *Atlas linguistique de la France* (1901).

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says: "il distintivo dal determinato tipo sta appunto nella simultanea presenza o nella particolar combinazione di quei caratteri." Nor can, even for a purely descriptive classification, the same value be assigned alike to all characteristics. Reference has already been made in a previous lecture to the principle of subordination of qualities which Jussieu introduced into the natural sciences, of which the leading idea is "to consider certain organs and certain relations between organs as more important than others, so that a certain relation is prominent enough to mark a 'family,' another one a 'genus,' a third one only a 'species.'"¹ In this connection Kauffmann² has emphasized what he calls "constitutive factors," namely, accent, intonation, quantity, as of paramount importance and greater value than single detached sounds. In dealing with dialects it is, however, often possible to leave this purely descriptive method and approach to a certain extent the ideal of all classification, namely, the genetic one, which groups objects not simply according to outward appearance, but according to their development. In doing so, we exchange the static for the historical aspect. This historical element was introduced by Groeber,³ and has been rightly emphasized by Horning. It affects our view of dialectal characteristics in two ways: in the first place,⁴ the different characteristics are no longer on

¹ De Candolle, *Introduction à l'étude de la botanique* (1835), p. 485.

² In Kirchhoff's *Anleitung zur deutschen Landes- und Volksforschung* (1889), p. 388, quoted by Wechsler in *Forschungen z. rom. Phil.* Festgabe f. Suchier (1900), p. 524. Already Tourtoulon had noted the fact that the difference of the Provençal paroxytone accentuation as contrasted with the French oxytone accent was a sufficiently characteristic mark, cf. Horning, *Zt. f. rom. Phil.*, XVII (1893), p. 170.

³ *Grundriss d. roman. Philol.*, I, p. 416.

⁴ Horning, *Zt. f. rom. Phil.*, XVII (1893), p. 184.

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the same plane, but stand out in historical perspective. In the second place,¹ the concurrence of a number of characteristics covering approximately the same area is no longer due to chance, but historically necessary, because they occur in the speech of individuals who, forming a community, spread over a given geographical area. The history of the speakers thus becomes important for the understanding of the dialect. The results of the descriptive classification of the isolated linguistic facts can then be corrected by combining with it a study of the history of the people; for France, for instance, by an investigation in the method and history of the Roman colonization of Gaul. Where, however, such independent historical (political) data are absent, the classification of dialectic traits, while not absolutely arbitrary, will yet exhibit those defects which characterize all descriptive classifications (*e. g.*, Linnæus). It is the absence of sufficient historical data which makes a satisfactory genetic classification of the Greek dialects impossible,² for this would require familiarity with the ethnic movements within Greece and with the details of migrations and colonizations. This ethnological information, to be of value, must be independent, that is, it must not itself be based upon linguistic evidence; else we are reasoning in a vicious circle, first extracting our ethnological knowledge from the facts of language, and then using the knowledge so obtained to explain these same facts.

- 14 The view which is held concerning the character of dialect and language determines the attitude which one will take toward the inferential and comparative reconstruction of prehistoric parent languages upon the basis

¹ Horning, *l. c.* p. 166.

² Brugmann's *Griech. Gramm.* (3d ed., 1900), p. 14-15.

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of historical descendants. This idea, as has been stated before, originated with Schleicher and has been at the bottom of much comparative work of the period which was ushered in by Schleicher's *Compendium* (1861).

To be sure, the parent language as now reconstructed looks very different from that inferred by Schleicher.

We have ceased to look with Schleicher for absolute simplicity in the parent language. To him the morphological elements of a word were then still intact, for successive vowels and consonants had not yet begun to react on each other. The diversity and manifoldness in sounds and inflection of the various Indo-European idioms as they appear in historical times are to Schleicher the results of decay and degeneration. This theory was gradually abandoned for two reasons.

First, because such an *à priori* postulate of simplicity, if accepted at all, could only reasonably be made for the very first period of language production. But this period is absolutely beyond our reach and separated by a vast gulf from the periods amenable to reconstruction.

Second, because this principle conflicts with Schleicher's second methodological principle, that the parent form must be of such a character that all really existing forms of the Indo-European languages may be derived from it by regular laws. The more consistently this principle has been applied and the more strictly phonetic laws have been interpreted, the more has simplicity given way to complexity, and in consequence of it the parent language as now reconstructed is, in many respects, richer than any of its descendants.

- 15 An inquiry into the nature and character of the parent language, thus reconstructed, will naturally fall into two parts.

First, we must examine the various limitations to

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which this method of reconstruction is necessarily subject.

Second, we must determine how these limitations affect the object reconstructed according to this comparative method; whether, namely, they imply quantitative imperfections only, or whether their influence is so vital as to touch upon the very essence and quality of the reconstructed object.

- 16 The first difficulty, which was early recognized and admitted, is that we must base our reconstructions on individual forms which have behind them a most unequal stretch of independent development. A Vedic form is separated from an Albanian form by at least 3000 years. And the problem is in reality not the reconstruction of the parent on the basis of descendants of the first degree, but on the basis of an aggregate of descendants of very different degrees, descendants which have undergone an independent development of very unequal duration, during which unknown external forces have had an opportunity of variously affecting them.

For this reason Schleicher (1850) held that while all historical Indo-European languages must form the basis on which the parent language is to be constructed, yet the varying degree of faithfulness with which the different languages have preserved old sounds and forms makes those languages of especial importance which have remained nearest to the original home of the Indo-European parent people, a distinction no longer applicable since we know that the preservation of archaisms does not depend on geographical distance.

- 17 But, compared with the rest, this is a minor difficulty. Much more serious are those defects which result from the absence of all chronological data.

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Philology, like all historical sciences, requires an object clearly defined in time and in space. It is here that we find the comparative method most seriously defective.

The chief characteristic of all modern grammatical investigations is that they are historical, *i. e.*, that they do not treat a language as if it were fixed and immovable, but as a growth whose changing phases should be outlined in a connected series of successive periods. The very attempt to reconstruct a parent language is due to this historical treatment, for its aim is simply to extend the continuity of development beyond historical times.

This fact was strongly emphasized by Johannes Schmidt¹ (1872): "As soon as we combine a larger or smaller number of 'parent-forms' and think to have gained thereby a definite section, however small, of the parent speech, we lose all firm foundation beneath our feet. For these 'parent-forms' may have originated at entirely different times, and we have no reason whatever to assume that the parent-form A was still unchanged when B arose, or that C and D arising at the same period remained unchanged for the same length of time. When we therefore attempt to write a connected sentence in the 'Parent Speech,' it may easily happen that although every word in it be rightly reconstructed, yet the sentence as a whole is no better than the translation of a verse of the gospels, the words for which have been taken partly from Vulfilas' translation, partly from that which goes by the name of Tatian's, and partly from Luther's." Similarly Brugmann said in the first edition of his *Grundriss* (1886):² "When

¹ *Die Verwandtschaftsverhältnisse, etc.*, p. 30 f.

² Cf. *Grundriss*, I (2d ed.), part I, p. 23-24.

we speak of Indo-European forms we generally mean those forms which were in use toward the close of the primitive period. But we also often mean such forms as belonged to an earlier period of this stage and which had already undergone a change toward its termination. Forms put down by us as primitive Indo-European . . . are, therefore, not to be indiscriminately regarded as belonging to the same period."

The essential defect is, in the words of Schmidt, the total lack of historical perspective. All reconstructed parent-forms thus appear on the same plane, like objects in a flat drawing. Since then "the inferred parent-forms, when taken together, do not yield a language which was ever spoken at one definite point of time by a clearly defined linguistic community, but as these forms, on the contrary, belonged to different times and different localities, we can only speak of an Indo-European Parent Language in the same sense in which one may use the term 'German Language' with reference to the whole course of its development throughout the Christian era to our own time, including all dialectic variations" (Brugmann, 1897).

The result of this absence of historical perspective becomes glaringly apparent if we imagine an English grammar or dictionary constructed according to a method by which Anglo-Saxon, Chaucerian, and nineteenth-century forms could not be separated, but would all stand on the same plane. "Ein buntschäckiges Wesen," as Niebuhr¹ called it in his Letter to a Young Philologist, "welches den ordentlichen Philologen ebenso ärgert, als wenn man Deutsch von 1650 und 1800 unter einander mengt."

¹ K. G. Jacob's "B. G. Niebuhr's Brief an einen jungen Philologen," p. 131.

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It is only another aspect of the same fundamental difficulty that we are unable to fix accurately the time and extent of operation of inferred phonetic laws. Ignorant of the exact time during which they were operative and of the relative chronology of different laws, it is inevitable that we must be constantly committing the gravest anachronisms in our reconstruction of Indo-European forms, combining in the same form laws which operated at entirely different periods. As early as 1869 Johannes Schmidt called attention to this danger. In the preface (p. ix) to the second edition of Schleicher's *Die deutsche Sprache* (revised by him after Schleicher's death) he says: "The forms of the German parent speech I have left as Schleicher wrote them. . . . It was of no importance [and, we must add, it would have been impossible] to reconstruct here the words in all their parts just as they actually existed at some one definite prehistoric point of time, but the aim was simply to restore the old endings for the better understanding of their later forms. Whether, for instance, the gen. plur. *dagâm* ever existed in this form, or whether, at the time when the gen. plur. terminated in *-âm*, the shifting of mutes had not yet taken place and the form was, consequently, *daghâm*, while after the shifting of mutes the real form was *dagâ*, is immaterial for the purposes of this book. In this respect all forms of the German parent speech are merely hypothetical."

If we were to adopt this method in the reconstruction of an English word, we should run the risk of joining to a Chaucerian stem an Anglo-Saxon prefix and a nineteenth-century suffix, begetting a monster not unlike the Chimaera, πρόσθε λέων, ὀπίθεν δὲ δράκων, μέσση δὲ χίμαιρα.

18 To these chronological difficulties which may lead us

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on the one hand to assign two words to the same pre-literary period, though in reality one may have disappeared long before the other came into use, and, on the other hand, to unite in the same word phonetic changes which belong to entirely different periods, must be added a third, the seriousness of which is often overlooked, namely, that the antiquity of a sound change cannot be measured by the uniformity with which the individual languages present it. The fault of inferring antiquity from the universality of a sound change or form or meaning was clearly pointed out by Paul (1880):¹ "Even after a linguistic area has become dialectically differentiated, certain changes may well permeate the whole area. . . . It is too much the habit to consider all changes which are common to the whole linguistic area as for that reason older than those which are confined to some parts of this area. . . . It cannot be denied that the greater extent of a given phenomenon makes its greater antiquity probable, but it furnishes no definite proof at all. There will be cases . . . in which a widely spread change is later than a change confined to a small territory." Bremer, in his suggestive article on "Relative Sprachchronologie" (1894),² illustrated this by the concrete example of a phonetic change confined to the Anglo-Frisian, for which, on direct evidence, greater antiquity may be claimed than for certain changes which are common to all Germanic dialects. These considerations have led Kretschmer³ to contrast and distinguish very sharply between "gemeinindogermanisch" (*i. e.*, common to all historical Indo-European languages) and "altindogermanisch" (*i. e.*, belong-

¹ *Principien* (1st ed.), p. 238 = (2d and 3d ed.), p. 41.

² *Indogerm. Forsch.*, IV, p. 1.

³ *Einleitung in die Geschichte d. Griech. Sprache* (1896), p. 12 ff.

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ing to the prehistoric, Indo-European parent language), a distinction which is also made by Brugmann in the second edition of the *Grundriss* (1897).¹ In fact this acceptance of universality as a proof of antiquity is a corollary of the linear theory of the disintegration of the Indo-European primitive stock, which pictures its growth in the form of a genealogical tree. It stands and falls with this theory, which was elaborated by Schleicher.

To Schleicher the Indo-European parent people was a nation limited in numbers, inhabiting a comparatively small area somewhere in Asia, whence issued forth, from time to time, migratory expeditions which settled down in new homes more or less removed from the old parent stock, and, breaking intercourse with it, started on a line of independent development.

The bifurcating lines in the picture of Schleicher's genealogical tree "really denote," as Leskien² has well put it, "the routes of migration of the assumed groups and tribes, routes which cannot at present and perhaps can never be fixed with greater geographical accuracy; the starting point of the whole system of lines is the original seat of the Indo-European Parent People. The whole theory rests, therefore, upon the assumption that in the history of the Indo-European nations a certain number of migrations have taken place which involved so complete geographical separations as to destroy all former linguistic and ethnical intercourse." In contrast to this Schuchardt³ had pointed out, in 1868 and several

¹ Vol. I., Part I, p. 28-29.

² *Die Declination im Slavisch-Litauischen*, etc., p. vii f.

³ *Vokalismus des Vulgärlateins*, III (1868), p. 32-34 (addendum to vol. I [1866], p. 83); also in his inaugural lecture at the University of Leipzig, April 30, 1870, "Über die Klassifikation der Romanischen Mundarten" (reprinted — unfortunately for private circulation only — in 1900), and in *Romania*, III, p. 9, note.

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times thereafter, that the Romance languages cannot satisfactorily be derived from the Latin in this manner, and we find in him for the first time the comparison of the spread of linguistic changes with the concentric wave-circles which proceed from the spot where a pebble has been thrown into the water. A few years later and independently the theory of gradual dialectal disintegration of the Indo-European parent language was advanced by Johannes Schmidt at the twenty-eighth meeting of German philologists.¹ The Slavo-lettic family, he pointed out, is united on the one hand with the Teutonic branch, on the other with the Indo-Iranian languages, as long as one adheres to Schleicher's theory of ramification it will be impossible to explain satisfactorily these and similar relations. The character of the Slavo-lettic "becomes intelligible only when it is recognized that it must be separated neither from the Teutonic nor from the Indo-Iranian, but that it forms the organic connection between the two." In a like manner the similarities of other Indo-European languages must be explained. They are the traces by which we may still recognize former contact. They are easily understood if we assume gradual dialectal differentiation with "continual transitions leading from one language to the other. . . . Originally there were no sharp dialectal boundaries within the Indo-European territory." These sharp boundaries were, according to Schmidt, the later results of an elimination of the intermediary dialects, by which the victorious extremes came into contact. As languages are not independent organisms, but are insepa-

¹ Ueber die Theilung d. indogermanischen Sprachstammes in enger verbundene Einzelgruppen, in Verhandl. d. XXVIII. Versam. deut. Philol. etc. zu Leipzig (1873), p. 220. Cf. also *Die Verwandtschaftsverhältnisse der indogermanischen Sprachen* (1872) and *Zur Geschichte d. indogerm. Vokalismus*, II (1875), p. 192.

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rably connected¹ with the history of those who speak them, neither Schleicher's nor Schmidt's theory is purely linguistic, but they rest upon certain ethnological assumptions. We saw above that Schleicher's theory presupposes extensive migrations by which parts of the parent stock are torn from it, in such a way that intercourse between them ceases. There can be little doubt that here, as elsewhere, Schleicher was influenced by biological considerations. A language was to him an individual, like an animal; the propagation of the former was to him similar to that of the latter. Hence he speaks of mother-languages and daughter-languages. His whole theory of ramification repeats the genealogical tree of a human family. As by the process of birth the child through a physiological separation from the mother becomes an independent individual, so a language is born and becomes an independent individual by the geographical separation of its speakers from the parent stock. The fundamental error is that biological views and terms are transferred without change to social facts, to the great detriment of the proper valuation and understanding of these latter.

The ethnological basis for Schmidt's theory, on the other hand, is gradual expansion, by which one peripheral belt was added to another, as time passed and numbers increased. Instead of a series of sudden interruptions of intercourse between certain members, we have here a constant communication of the members of the outer and the inner belts, though varying in the degree of intensity. Proportional to this latter must have been the similarity of speech.

The effect of this continual interdependence, which

¹ The intimate connection of linguistic and ethnological theory is emphasized by Leskien, *Die Declination*, etc., p. ix.

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thus takes the place of Schleicher's independence, is a slow dissemination over an ever-increasing area of whatever developments in language or institutions or art or manufacture may arise in any one locality.

It is the task of the ethnologist and geographer to investigate such theories in detail,¹ and to assign to each the proper place which it may have played in locating the Indo-Europeans in their present quarters. As Leskien pointed out in 1876, Schleicher's and Schmidt's theories do not exclude one another. Nor are all possibilities exhausted by them. For besides the independent linguistic development which is the result of separation (Schleicher), and the slow dialectal differentiation which is due to gradual expansion and consequent variation of the intensity of intercourse (Schmidt), we must also reckon with the possibility of peripheral assimilation of two dialects which, by enlarging their respective territories, come into contact (an important factor, as Groeber showed, in the development of the Romance dialects), and finally with the effects of contact and mixture with foreign tribes, which undoubtedly played a very important part in influencing the Indo-European idioms. Here, however, where we deal with the possibility of reconstructing an Indo-European parent language, there is no need to enter upon these questions. It is sufficient for our purpose if it be admitted that Schmidt's theory of gradual expansion and varying intensity of intercourse held good for that early period of prehistoric Indo-European history which alone we can reach by reconstruction. For as soon as we

¹ Ethnological discussion of the problem in Vødskov's *Sjæledyrkelse og Naturdyrkelse*, I (1890), analyzed at length in *Indogerm. Forschung., Anzeiger.*, III, p. 111, and by Ratzel in *Sitz. Ber. d. k. sächs. Ges. d. Wiss.* (1898), p. 1-75.

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substitute this theory of gradual expansion for that of disintegration, we can no longer contrast the parent stock with the individual members, as Schleicher does. Instead of a parent stock which is broken up into a number of smaller units which, stopping their intercourse with the main body, start on a new and independent course of development, we must posit a nucleus which develops proportionately with the outer belts, which continually reacts on them, as they react on it, which, in a word, is ever changing.

- 19 The essential point for us is that we cannot speak of a primitive homogeneous parent speech. As early as 1872, Johannes Schmidt wrote: "That a homogeneous Indo-European parent language once existed is highly probable; it would be certain if it could be proved that the human race had its beginning in a few individuals. The burden of this proof falls upon others; for the time being, we must be satisfied that comparative grammar with its present apparatus has failed to penetrate to so remote a period; in many cases we must assume even for the prehistoric period dialectal variations which cannot be further reduced." With this view Brugmann agreed in the introduction to the first edition of his *Grundriss*: "It is impossible to suppose that a language [like the Indo-European] should have gone through a long course of development and be spoken by a people of any considerable number without a certain amount of dialectic variations, and hence we cannot look upon the speech of the Indo-Europeans, even while they still occupied a comparatively small territory and maintained a fairly close degree of intercourse with one another, as bearing, in any strict sense, a uniform character. Local differences had, no doubt, already arisen. . . . We may take it for granted that the differentiation of dia-

lects about the year 2000 B. C. had gone so far that a number of communities existed side by side which could no longer or only with difficulty understand each other." The bearing of this upon any attempt at reconstruction did not escape Schmidt: "The parent language as a whole remains, then, a scientific fiction. This fiction may facilitate investigation, but what we may term to-day the Indo-European parent tongue is not a historical object." Similarly Bremer (1894) remarked: "Within every parent language there existed at all times dialectic variations. I do not believe that we shall ever succeed in reconstructing the posited Indo-European parent language in its main features. We shall have to content ourselves with the reconstruction of the dialectically differentiated components."

In 1896 Kretschmer, and in 1897 the writer,¹ again called attention to this fatal defect, a defect which affects the reconstruction of a parent speech not only quantitatively but qualitatively. For as the term "Indo-European" language can plainly not be used in the sense of "literary" language or ruling dialect (for such is the end, not the beginning, of linguistic evolution), it can only be employed in the other sense, namely, as a classificatory device, a generic abstraction. In this case, as we have seen above, language forms are nothing but ideal types, for which no perceptual reality can be claimed. The whole operation of reconstruction of parent forms is a logical, not a historical one; it is, in fact, no reconstruction at all, but a construction. Only when we have been able to observe an object during its period of evolution are we able to reconstruct by retracing the

¹ My paper (*Am. Jour. Philol.*, XVIII., p. 416), which was written early in 1896, was printed before I had read Kretschmer's exposition, with which I fully agree.

course of development, for of the three quantities, (1) primitive form, (2) course of development, and (3) derived form, two are known. In the construction of parent forms by the comparative method neither the primitive form is known, nor is it possible to determine experimentally the course of development from this unknown parent form to the later known form. This course also is not given, but inferred. We, therefore, deal here with two unknown quantities; and this makes very problematic any identification of the result of such a construction with the real prehistoric parent form. More or less of similarity there may be; but real identity would be a mere matter of chance, obtained in spite of the method, rather than through it. At any rate, cogent proof of such identity must always be lacking.

- 20 These considerations make it clear where the real value of comparative reconstruction lies. For it would be very rash to deny the value of constructive parent forms because perceptual reality cannot be claimed for them. Their distinct value lies, however, as indicated above, in the fact that they are the means by which we classify and arrange a given number of existing forms. The posited Indo-European *gen-* signifies that Latin *gen-*, Avestan *zan-*, Sanskrit *jan-*, etc., belong together. To claim more means losing one's self in a maze of speculative possibilities. So it is, of course, perfectly proper to say that the Indo-European possessed the vowels *a, e, o*, if it is borne in mind that, in doing so, we simply maintain that there is sufficient evidence to show that all prehistoric Indo-European dialects (which form the bases of the historical Indo-European languages) possessed these vowels at that stage of their development which antedates the historical epochs. This evidence, however, is not sufficient to warrant a claim that these

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three vowels belonged to the *whole* prehistoric period of Indo-European speech, or to settle the question as to their *original* independence.

The sum total of inferred forms does not give us a true picture of any language ever spoken; nay, even the single forms cannot lay claim to being representatives, true in every detail, of words ever in actual use. Yet it is only by reducing the results of our investigations to such *formulae* that they become convenient enough to be easily handled and permit a clear arrangement of the facts of a language. It is a significant fact and a sign of clear logic that Schleicher's great successor, Brugmann, in the *Grundriss*, does not follow his predecessor in placing on the title-page an "Indo-European parent language" alongside of the historical languages.

There are certain limitations which are inherent in, and common to, all historical sciences. Their objects must be clearly defined in space and in time. They all start where tradition, in one form or another, begins. It is true that inferences may be permitted as to what lies beyond this boundary line which divides the historic from the prehistoric. But these inferences must be confined to the period immediately preceding the beginnings of tradition. The farther they depart from it, the more shadowy, general, and unreal they become, because the data of time and space are wanting, and without these historical investigation becomes impossible.

- 21 It is not the task of linguistics but of ethnology to determine the limitations within which the data of language may be utilized for sociological, mythological, and political inferences. Within certain limits valuable help has often been derived from them where archæological evidence was wanting, and long before Rask, in

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1818, laid the corner stone of linguistic paleontology,¹ the Dorians, as Aristotle² tells us, rested their claim of having originated both tragedy and comedy upon the evidence of language (*ποιούμενοι τὰ ὀνόματα σημεῖον*); for it was in their dialect that villages were called *κῶμαι*, and their word for "to do" was *δρᾶν*, whereas the Athenians used *δῆμοι* for the former and *πράττειν* for the latter. The following considerations, however, counsel great care in such undertakings and caution in accepting the results.³

In the first place, a word common to many languages need not, on that account, have belonged to the earliest periods. It may owe its universality to borrowing. Even Schleicher, who firmly believed in a homogeneous parent people and held that "their primitive language could, on the whole, be quite fully and safely reconstructed," wrote⁴ in 1863: "The possibility of borrowing must never be lost sight of, especially where the European languages are concerned; therefore correspondences between the European members of the Indo-European stock cannot always be taken as sure and absolutely reliable proof." We have seen above that not even the existence of a word in the "Slavo-German" and "Indo-Iranian" can now with Schleicher be regarded as "a sufficient proof for the originality of a given word." While nonconformity to the phonetic

¹ The standard work is Schrader's *Prehistoric Antiquities of the Aryan Peoples* (Engl. transl. 1890) and his *Reallexicon der indogermanischen Altertumskunde* (1900-1).

² *Poet.*, III, 3.

³ Cf. the weighty objections raised by Kretschmer, *Einleitung in die Gesch. d. griech. Sprache* (1896, chapters ii and iii) and Kosinna, *Zt. d. Vereins für Volksk.* VI, 1, and their discussion by Schrader in the preface to his *Reallexicon der indogermanischen Altertumskunde* (1900-1).

⁴ *Jahrbücher f. Nationalökonomie und Statistik*, I, p. 403-4.

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rules of a language is a sign that the word was borrowed, it is not conversely true that conformity to such rules precludes borrowing, which may have taken place long before a particular phonetic change set in.

Again Schleicher noted, in 1863, that "many words may have been lost in the course of time, many may have survived in a single language only, and thus make it impossible for us to prove that they are original," so that lack of universality is by no means a proof that a word is late, and we cannot follow Justi¹ (1862) in assuming that "the wounds received in battle and senile debility seem to have been the only diseases by which these happy folk (the primitive Indo-Europeans) were visited," simply because there is disagreement in the pathological vocabulary of various Indo-European nations.

Finally, word and thing are not the same. This is important in two respects. (1) Whether a thing shall be named or remain nameless depends on the interest which the speaker takes in it. Just as Mrs. Dehio's daughter correctly distinguished colors² while she was not able to name them correctly, so the prehistoric and historic nations may be poor in color names without failing to distinguish color. When Cicero (*de orat.*, II, 4, 17), from the lack of a Greek equivalent for the Latin *ineptus*, concludes that the Greeks lacked an appreciation of this quality ("*itaque quod vim huius mali Graeci*

¹ Raumer's *Historisches Taschenbuch*. Vierte Folge. Dritter Jahrgang. (1862), p. 323.

² Preyer in *Zt. f. Psych. u. Phys. der Sinnesorgane*, XIV (1896), p. 323. Cf. also Quantz, *Psychol. Rev.*, Monogr. Supplem., vol. II, no. 1, p. 17. "Most errors are made, as one might expect, in the naming of colors. This may, to some extent, be accounted for on the supposition that some subjects, especially men, *misname a color even when seeing it correctly.*" v. d. Steinen, *Unter den Naturvölkern Zentral-Brasiliens* (1894), p. 80.

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non vident ne nomen quidem ei vitio imposuerunt. Ut enim quaeras omnia quomodo Graeci 'ineptum' appellant, non reperies"), he commits a frequent error. An inquiry into the development of the color sense upon a linguistic basis alone must thus be futile.¹ (2) A name is not inseparable from the object it designates. It may be transferred. Cognate terms, therefore, need not necessarily refer to the same thing, as is, for instance, the case in *φηγός* and *fagus*.

For these reasons Kosinna's and Kretschmer's exceptions to the methods of linguistic paleontology seem, on the whole, well taken. As was pointed out above, the comparative method is designed for purposes of classification rather than of reconstruction. The "parent language" is a scaffolding which we construct with our hands, according to a method necessarily defective. It cannot furnish a secure basis for a lofty superstructure of sociological or mythological or ethnological inferences. Investigations of this character, which are beset by enormous difficulties, even when carried on under the most favorable conditions, must necessarily see their ends defeated, if based upon material so unfit because designed for entirely different purposes. To test the efficiency of this method, let one reconstruct the outlines of ancient Roman society and religion upon the basis of the Romance languages, and compare the picture with reality.

¹ A. Marty, *Die Frage nach der geschichtlichen Entwicklung des Farbensinnes* (1879).

LECTURE III

CHANGES IN LANGUAGE

I

Imitative and Analogical Changes

1 IN the preceding lecture we dealt with geographical speech variations belonging to the same period. These differences lead to the formation of the concept of dialect, an attempt at classifying them as subjectively perceived. The dynamic problem of the causes to which changes in language are due will be our next topic, and the object of our investigation is not the geographical, contemporaneous differences in language, but the historical variations as they appear in the course of its temporal development. Such changes must have escaped all notice as long as there were no written records of the speech of past generations, but with the introduction of these attention was early called to them. Polybius,¹ for instance, expressly notes that he was able to decipher with the assistance of philological experts parts only of the treaty alleged to have been concluded between the Romans and the Carthaginians in the first year of the republic: “τηλικάυτη γὰρ ἡ διαφορὰ γέγονε τῆς διαλέκτου καὶ παρὰ Ῥωμαίοις τῆς νῦν πρὸς τὴν

¹ III, 22. The fact that the genuineness of this treaty must be strongly suspected (Zeller, *Latium und Rom*. [1878], p. 279) is of no importance here.

ἀρχαίαν ὥστε τοὺς συνεπατάτους ἔνια μόλις ἐξ ἐπιστάσεως διευκρινεῖν." And St. Jerome, in the introduction to his Commentary on the Epistle to the Galatians,¹ notes both geographical and historical changes in language: "Unum est quod inferimus et promissum in exordio reddimus, Galatas, excepto sermone Graeco quo omnis Oriens loquitur, propriam linguam eandem paene habere quam Treviros; nec referre si aliqua exinde corruerint cum et Afri Phoenicum linguam nonnulla ex parte mutaverint et ipsa Latinitas et regionibus quotidie mutetur et tempore."

- 2 All changes in language naturally fall into two classes, namely, such as concern the phonetic side of speech and such as concern its meaning.

Before, however, taking up each one of these problems, it is necessary to settle a number of preliminary questions which affect both alike.

In comprising a large mass of certain linguistic phenomena under the generic term of "changes," we are in danger of assuming *à priori* that all changes in speech are organically alike and therefore permit a uniform explanation. Such an attitude, leading one to "attempt to overcome the diverse forces that are active in real life with the defective armor of one narrow formula,"² will be a most effective impediment in the investigation of any complex social phenomenon, such as change in language. For while it is a truism that a like combination of like forces must produce like effects, it is no less true, though sometimes forgotten, that a different combination of different forces may produce like effects also. A series of social phenomena may therefore be apparently of the same nature, while in reality they are organically

¹ Migne's Patrologia Latina, 1st series, vol. XXVI, col. 357.

² Oldenberg, Zt. d. deut. morgenl. Ges., XXXIX, p. 173.

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very different. We are sometimes too easily satisfied with a descriptive classification which rests upon external appearances and takes little or no cognizance of the genesis of the objects with which it deals. Such classification is useful and necessary as a preliminary step, but its character must always be tentative, preparatory. As soon as it arrogates to itself any claim to finality it only delays progress. The purpose of all scientific investigation is to understand its objects, *i. e.*, to learn how they came to be what they are. If among one hundred bank-notes of a certain denomination a few should show a peculiar mark in the right-hand corner and some others a peculiar shading of the centre drawing, we should, of course, make a preliminary descriptive classification of these notes into three groups; but we should not, for that reason, be any the wiser concerning the origin of these peculiarities. Nor could we claim to have satisfied all justifiable curiosity if, on receiving an additional note, we should place it with those which it resembles most. Not until we have examined the plates, and the process of printing, and the fate of the notes after being issued, have we satisfactorily dealt with this problem. Naming a thing is not explaining it when, as is usual, the name merely reflects a classification according to external appearances.

- 3 Wherever we have to deal with changes in the language, belief, or customs of a social body, we must at the very outset distinguish between primary and secondary changes. By primary changes I mean those which originated in, and were created by, the individual, who, therefore, plays an active part in their production. By secondary changes I mean those which, having been originated elsewhere, are adopted by the individual, who, therefore, plays a passive part. This second class

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of changes is, therefore, "imitative" in the sense in which Tarde¹ uses the word, *i. e.*, without the usual implication of purpose or intention, or "mimetic" after Dantec's² terminology. Intentional and unintentional imitation is the force which makes man a *ζῶον πολιτικόν*. The uniformity of speech, belief, and customs does not rest upon the simultaneous active production of the same sound, thought, or habit by the several members of a community, but upon the universal acceptance and general "imitation" of some sound, thought, or habit which arose in a certain individual. A social group is not co-operative in the sense that each member actively participates in the production of every single element which goes to make up language, or belief, or customs. The initiative for every change, or, as Tarde calls it, for every "invention" (a term which he uses without any reference either to the degree of consciousness involved, for often an individual will "invent" without being aware of it, or to the difficulty or the merit of the invention), — the initiative for every innovation lies in the individual; but this "invention" gains its social character by "imitative" adoption. "Democracy," Mr. Zangwill³ said in one of his clever essays, "never escapes aristocracy, for the people never invents ideas; its whole power is that of choice between the ideas offered by its would-be leaders, and even these it accepts less as a philosopher than as a patient, rather as 'germs' than as thoughts." By means of social "imitation" we obtain⁴ "*une reproduction quasi photographique d'un cliché cérébral par la plaque sensible d'un autre cer-*

¹ Le rôle social de l'Imitation (in *Revue Scientifique*, XXXV [1890]), and *Les lois de l'Imitation* (1895).

² *Revue philosophique*, XXXXVI (1898), p. 359.

³ *Without Prejudice* (1896), p. 68.

⁴ Tarde, *Les lois de l'Imitation* (2d ed., 1895), p. viii and 37.

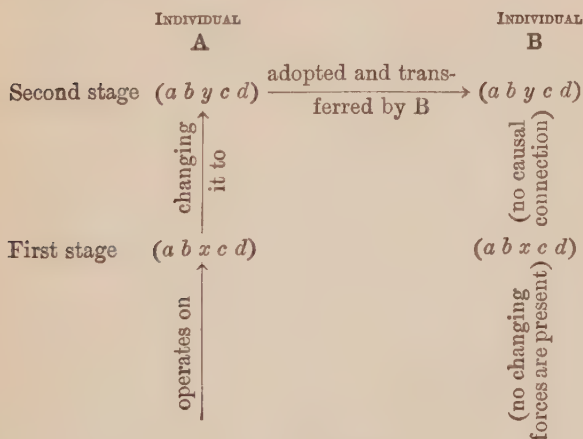
veau" . . . "[une] empreinte de photographie inter-spirituelle, pour ainsi dire, qu'elle soit voulue ou non, passive ou active." . . . "L'imitation est une génération à distance." That "imitation" in social life plays a part similar to that of heredity in organic life is the thesis of a whole chapter of Tarde's suggestive book. Here is the reason for the uniform, typical character of social facts as contrasted with the dissimilarity and apparent irregularity of those intellectual manifestations which belong preponderatingly to the individual. This is the difference between the social products of language, religion, and customs, which are essentially democratic, because only that which has met with the approval of the community can enter into them, while all other innovations must vanish without leaving a trace, as contrasted with the individual creations of literature and philosophy, which are essentially aristocratic because their existence depends on the will and ability of the individual alone, and not on the approval of the masses. That imitative dependence which appears abnormally magnified in hypnotism¹ lies at the bottom of social imitation and of society itself. "La société c'est l'imitation, et l'imitation c'est une espèce de somnambulisme," — thus Tarde² sums up one of his chapters. The distinction between primary and secondary changes is of the greatest importance, because the causes for a change can only be studied where the change is primary. In the case of secondary (imitative) changes, on the other hand, we must seek for reasons

¹ Cf. A. Binet, *La Suggestibilité* (Biblioth. de Pédagogie et de Psychologie), 1900; Sidis, *The Psychology of Suggestion*, 1898; also Baldwin, *Social and Ethical Interpretations in Mental Development* (1897), p. 228, § 148.

² *Les lois de l'Imitation* (1895), p. 95.

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for their adoption. It goes without saying that all secondary changes originated as primary changes and as such they are the direct result of certain forces. But as secondary, *i. e.*, adopted changes, they appear where these forces never existed. To make a coin it is necessary to have a machine, but any one can possess a coin without ever having had a machine. Not everywhere, therefore, where a certain change is observable, may we expect to find the causes also to which it is due; such generative forces can only be discovered where the change is primary. The following diagram may help to illustrate this point. In it (*a b x c d*) represents a word consisting of five sound-elements, Σ a sum of forces which operate on the sound-element *x* and change it to *y*. This change takes place in the individual A. The individual B merely imitates this change, and adopting the form (*a b y c d*), substitutes it for his original (*a b x c d*). The ultimate outcome is the same for A and B, but the two processes are fundamentally different.



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Considering its great importance for the proper understanding of linguistic phenomena, the attention which has been devoted to imitation in language has been but very scant. Benfey,¹ in 1877, referred in general terms to imitation as a factor in linguistic development. How can we, he asks, account for the greater or smaller degree of uniformity which characterizes the speech of a social unit in spite of the tendency in each individual to vary in his pronunciation? In answer he points to "the tendency to assimilation and equalization (*Trieb der An- oder Ausgleichung*) which pervades mankind, and upon which rests the social character of man as a *ζῶον πολιτικόν*." He then proceeds to illustrate this process of assimilation by references to the uniformity apparent in family-languages, the language of a village, of a province, and of a whole country, all of them results of an equalization of the speech of a number of individuals. "The larger social unit sets the standard for all smaller units contained in it, to which every member of a smaller unit submits, sometimes consciously, oftener without being aware of it." As representatives of this standard, we have "in primitive times poets, orators, and, in general, those who possessed the gift to influence others by a decisive, powerful, and successful use of words. The feeling prevails that those who know how to attain important ends by means of speech are standard speakers, not only with reference to substance but also to form, that their way of handling language is the only proper and good way. So they became authorities, whose example was followed first by a narrow circle, which kept expanding and thus gained

¹ Nachrichten v. d. k. Gesellsch. d. Wiss. z. Göttingen (1877), p. 547-553.

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recognition — if not always universal acceptance — for a uniform pronunciation.” Apart from the fact that the involuntary character is not sufficiently emphasized, Benfey’s discussion can leave no doubt as to the importance which he assigned to social imitation. But no one seems to have thought it worth while to study this problem of the imitative spread of speech-sounds, words, and constructions in detail, and to collect a sufficiently large number of concrete examples. A few scattered allusions (which any one can easily parallel from his own experience) are all that we meet with in literature. Goethe,¹ in his autobiography, tells how he and his sister took English lessons of a native teacher, and how both in this way mastered not only the accentual and tonic intricacies of the English language but “acquired even the personal peculiarities of our master, so that it made a strange impression when we seemed to talk as if with one mouth.” In the same way Heidsiek² relates that when he made a tour through the Thuringian Forest with a friend who had a good ear for music, the latter had acquired in a few days such proficiency in the Thuringian dialect that he might have denied his Westphalian origin; and E. v. Wolzogen³ notes the ease with which some persons become infected, as it were, with the dialect of the person to whom they speak, just as Dickens had remarked in his *Tale of Two Cities* how any strongly marked expression of face on the part of a chief actor in a scene of great interest is unconsciously imitated by the spectators.

Of phoneticians, Bremer has not only distinctly advo-

¹ *Aus meinem Leben*, II, chapter vi, p. 239 (ed. Geiger. Neue Ausgabe. Berlin, 1887).

² *Der Taubstumme und seine Sprache* (1887), p. 93.

³ In his novel *Der Kraft-Mayr* (1897), II, p. 44.

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cated the imitative spread of sound changes, but also illustrated it by a few concrete examples. In the introduction to his *Deutsche Phonetik*¹ (1893) he maintains that "phonetic changes which appear in a language, like all other linguistic changes, in the great majority of the members of a linguistic unit did not arise organically, nor are they original with them, but they start among a small circle with which the rest maintain a linguistic exchange, and are thence adopted during the course of generations." In support of this assertion, he cites the westward progress of the High-German *ei* and *au* into Thuringia, in consequence of which only the older generation preserves *î* and *û* in words like *Zit* (*Zeit*) and *Hûs* (*Haus*); the spread of the uvular *r*, which was introduced from France into Germany and crowded out the alveolar *r* first in the cities, whence the new sound is carried into the villages and imitated; and a few other instances of similar gradual diffusion of a sound. Darmesteter and Hatzfeld² mention a like spread of *ou* for *o* in the French of the sixteenth century; starting in the South, this infected the rest of France, so that Father Chiffet wrote in 1659: "J'ay veu le temps que presque toute la France estoit pleine de chouses; tous ceux qui se piquoient d'estre diserts chousaient à chaque période." The same authors note the change of intervocalic *r* to *z* and *vice versa*, a linguistic fad, ridiculed in one of the *Epistres* attributed to Clément Marot,³ entitled "*Epistre du Biau Fy de Pazy*" and beginning with the lines:

¹ P. x f. and 14 f.

² *Le Seizième Siècle* (4th ed., 1889), p. 203 (*ou* for *o*), p. 221 (*r* for *z*).

³ *Œuvres complètes de Clément Marot* (nouv. éd. Paris, 1824), vol. III, p. 482 ff. This "*epistre*" probably belongs to his son Michel. But among Clément's genuine "*Epigrammes*" is one "*Sur quelques mauvelaises ma-*

"Madame je vous raine tan,
 Mais ne le dicte pas pourtan,
 Les musailles on derozeille
 Celuy qui et les gran merveille
 Nou doin bien to couché ensemble,
 Car je vous rayme, ce me semble,
 Si for que ne vou l'ore dize
 Et vou l'ay bien voulu escrize."¹

Again, the Hôtel de Pisani and the salon of Catherine, marquise de Rambouillet, in its glory the birthplace of the French Academy, in its decline the cradle of the *Précieuses* whom Molière ridiculed, must have been a centre of linguistic innovations. These, from the evidence accessible to me, were rather lexicographical and stylistic than phonetic, and found ready imitators in all the "ruelles," "alcoves," and "reduits."

For syntactical, stylistic and lexicographical innovations the theory of unintentional repetition (imitation), despite the absence of systematic collections, will not be viewed with disfavor. It is too evident in these cases how words, phrases, and construction are taken up and adopted. Not very long ago² we saw the word "pantata" rise in New York, gain a certain currency, and disappear again because it could not compete with

nières de parler" (vol. II, p. 461 = *Epigrammes*, liv. IV, no. xxv) in which he satirizes some conjugational vagaries:

Collin s'en allit au lendit
 Ou n'achetit, ni ne vendit
 Mais seulement, à ce qu'on dict,
 Derobit une jument noire.
 La raison qu'on ne le penda
 Fut que soudain il responda
 Que jamais antre il n'entenda, etc.

¹ A solitary remnant of this change is preserved in *chaise*, which continued in this form because it had become semantically differentiated from *chaire*.

² During the investigation by the Lexow Committee.

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the well-established "boss." Still more recently the word "strenuous" was launched upon an apparently successful career, and about the same time "to save one's face"¹ seemed acceptable to many. No one would claim that these phrases met an actual want, much less that in these cases there existed, in those who adopted these innovations, a certain predisposition which made them particularly susceptible. Yet this is the claim which is usually made in the case of phonetic alterations. "There must exist," as Brugmann² once said, "in a large number of individuals a tendency toward the alteration to insure its success." While this may be true for some changes, it is not true for even the majority, for in many phonetic changes acceptance and rejection do not rest upon the character of the change itself at all, but upon external social considerations which have no inherent or necessary connection with the change. This is the reason why all attempts to explain the survival and spread of linguistic changes on a purely linguistic basis must fail. For instance, certain pronunciations, words, and constructions, which are often linguistically quite justified, are yet tabooed as vulgar. So while "muséum" is proper, "theâter" (theayter) is not; of the same character are "genuïne," "engīne" (with ī as "eye"), "you was," and many others. "What sort of people are the Herberts? Is Mrs. Herbert a lady?" asks a character in a recent novel.³ The answer is: "She is the sort of person who pronounces the 't' in 'often.'" In all these cases acceptance and rejection depend on causes which have nothing to do with the

¹ Due to the Chinese troubles and their language.

² Zum heutigen Stande der Sprachwissenschaft (1885), p. 50. Cf. also Wechsler Forschungen z. Rom. Philol. Festg. f. Suchier (1900), p. 380.

³ Th. Fowler, *The Farringtons*, p. 160.

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ease or difficulty or frequency of the sound. They are exactly parallel to the spread of fashions. When Joh. Schmidt argues against Friedrich Müller that sound changes cannot be regarded as fashions which the individual is at liberty to follow or reject, according to his choice, he fails to see that whatever may be true theoretically, in practice the individual is not free to accept or to decline a fashion if he is to maintain his place in the circle which has decided in favor of it. No one need follow a fad, because that is purely individual; but he who refuses to follow a fashion, which is social in character, will find himself isolated exactly as he who maintains or affects an unusual or disapproved pronunciation. Here again Goethe's autobiography contains a passage in which the parallelism of fashion in dress and fashion in speech (= dialectal peculiarities) is rather strikingly brought out.¹ Among the inconveniences which he encountered when, in 1765, he transferred his residence to Leipzig, "such as are entailed in any change of locality and circumstances," Goethe singles out two as of especial note. "The first thing which the ladies found fault with was my dress, and it is true that I arrived from home at the Academy somewhat strangely equipped." And he rather amusingly details how his father, while on the one hand insisting on the best of cloth, yet had all garments made at home by one of the servants, "so that as to material we were well able to challenge comparison, but the cut spoilt it all; for though such a domestic tailor might have been a good enough journeyman and able to sew together a well cut coat, he did not usually succeed in cutting the cloth himself," a difficulty aggravated by the preference of Goethe's father for old patterns and orna-

¹ *Dichtung und Wahrheit*, book VI.

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ments. When Goethe appeared in Leipzig in this wardrobe, which even included a braided coat, "it was not long before my friends, first by teasing, then by persuasive reasoning, tried to convince me that I looked as if blown in from some other planet. However it annoyed me, I did not at first know how to help myself. But when Herr von Masuren (a comic character representing the archaizing country squire in Frau Gottsched's translation of Destouches' play, *Le poète campagnard*), the favorite squire, appeared upon the stage in a similar dress, and made a greater hit by his sartorial than his mental incongruities, I took courage and exchanged my whole wardrobe — though it shrank a good deal — for one that would conform to the fashion of the place.

"This trial over, a new one arose, which was even more unpleasant, because it concerned a matter not so easily put aside and exchanged. My native speech was the Upper German dialect, and although my father had always striven for a certain purity of language, and, for the improvement of our language, early called the attention of us children to what might be considered serious defects of this idiom, yet I retained many of the deeply rooted peculiarities, which I emphasized, because I liked them for their *naïveté*, but which always provoked strong expressions of disapprobation from my new fellow townsmen. . . . Every one knows how stubbornly the dialect of Meissen succeeded in dominating, nay, for a time in excluding, the others. For many years we have suffered under this pedantic rule, and only by much opposition have the other provinces reclaimed their rights. What a young and active man suffers by this continual fault-finding can easily be understood if you will but reflect that with pronunciation — on which one might be ready to yield — a sacrifice

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in thought, imagination, feeling, and native character is also demanded. And these intolerable demands were made by educated men and women." The difference of a change in dress and in pronunciation is not a qualitative one. They differ in ease, as Goethe rightly points out, because a change in pronunciation requires the acquisition of a new set of movements and the obliteration of a strongly impressed memory of the old set, all of which a change in dress does not involve. Further than that, there are a greater number of details in speech than in dress which remain unobserved, and in which the individual is left free. But a failure to accept what is deemed essential in either dress or speech fashion is an anti-social proceeding; it is properly resented by society and must eventually lead to isolation. Nor is this true of modern times only. In fact we now allow the individual greater freedom than the uncivilized tribes do, where the individual is much more completely merged in the community. And there are the best of reasons for assuming that a much stricter uniformity in belief, customs, speech, and so forth was insisted upon in early times. For the proper understanding of the term "phonetic law," a discussion of which must be postponed till later, it will be convenient to summarize this paragraph as follows: Only a small number of linguistic changes of whatever kind arise simultaneously in many individuals. The bulk originates in one individual and gains currency when imitated by others. This imitation is in a small minority of cases intentional, in by far the largest number it is unintentional. Acceptance and rejection of a given change do not always rest upon the character of the change, but very often on external, social conditions. Every imitated linguistic innovation requires a certain time to gain currency.

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This time is proportionate to the ease of suggestibility of those who are confronted with the change. Wherever there is but a low degree of such suggestibility the dialect remains stationary, and changes do not spread far; where the opposite is the case, languages change readily and innovations cover a large area. But the degree of suggestibility is not uniform for all changes, but varies for each individual case. This variation explains why certain changes, though very ancient, have remained restricted to a small area, while others have spread over the confines of their original linguistic community. The geographical and chronological details of phonetic, lexicographical, and syntactical innovations are yet awaiting investigation at the hands of students of the modern languages.

In the case of the imitative spread of sound changes we must finally distinguish between those cases in which a single sound as such is imitated, and those in which a new sound is received, not as such, but as bound up with a definite word or series of words. Both have been noted by Bremer.¹ The gradual substitution of the literary High German *ei* for the close *é* in the dialect of Halle (as "wêss" for "weiss," "štên" for "stein") is not an independent sound substitution, but occurs only in those words which have been imported bodily into the dialect. "A word which has no equivalent in the literary German would, of course, retain its *ê*. . . . It is also noticeable that more rarely used words and such as occur in public life are usually pronounced with the new diphthong (*ei*), *e. g.*, always 'Kaiser,' while everyday words, like 'ich wêss,' are longer retained. . . . Common people say 'der Stên,' but 'Giebichenstein' and at times 'keen Kleid' in

¹ Deutsche Phonetik, p. xi.

juxtaposition." The imitation of a sound change as such Bremer illustrates by the substitution of the High German *št* (in "štehen," "šprechen") for the Low German *st*.

In those cases where a sound change is introduced not by itself but together with extra-dialectal words, it sometimes happens that a wrong relation is established between the old and the new sounds, and that then the substitution of a sound is unduly extended. So we have in a great many words (like "point," "to boil," etc.) illustrations of the contrast between the literary and original *oi* and the dialectal *i* ("pint," "to bile," etc.). In adapting the dialectal pronunciation (*i*) to the standard English *oi* the change is sometimes carried too far, and an *oi* is substituted for an *i* where the latter is legitimate. So Shakespeare's "bile" has become "boil," Old French "giste" has been changed to "joist."¹ In the same way the relation of vulgar *-en* (*-in*) in the so-called present participle to standard English *-ing* gives by extension forms like *chicking*, *kitching*, *parding* (chicken, kitchen, pardon). This process is exactly parallel to what in Greek grammar is termed Hyperdoricism and Hyperaeolicism, as in the ἐφάβων on an Aeolic inscription of Roman times and the Theocritean ἄβα.

- 4 In discussing imitative changes so far I have always referred to the imitation of one individual by another, and the consequent transfer of some peculiarity of speech from one person to another. There is, however, also an imitation of an individual by himself, an adaptation of certain of his actions to other actions of his own. This intra-individual imitation we mean when, in language, we speak of analogy. Analogical changes form the exact counterpart within the same

¹ Storm, *Engl. Philologie* (2d ed.), II, p. 820.

individual to the "imitative" changes within a social group, which we have just discussed. As we distinguished then between primary and secondary changes, so we must now distinguish between independent and analogical changes. Both primary and independent changes are original, while secondary and analogical changes are imitative. The only difference between the last two is that in the former one individual imitates another, in the latter the same individual imitates himself. We must, therefore, not look for generative forces in analogical changes any more than we should expect to find them in secondary changes. Both being imitative, the question in both cases is not what were the forces which brought about an innovation, but what was the reason for its adoption.

- 5 The basis of all analogy formation is association. Without previous association there can be no analogy formation, for we mean by this term the interference of one word or phrase with another word or phrase, and such interference is impossible without some sort of associative contact. But while every case of analogy formation presupposes an association, it is not conversely true that every association must result in an analogy formation. Wherever such analogy formation has taken place it is a sign that the two associated words or phrases have not remained equipollent, but that one has proved stronger than the other, and the reason for such preponderance is a fit subject for investigation. Both points have been briefly touched by Scherer. "It would be a useful undertaking," he says in his *Zur Geschichte der deutschen Sprache* (1868),¹ "if some one would treat

¹ P. 177 of the first edition with the addendum on p. 473 = p. 26 of the second edition; cf. also Zimmer's review of the second edition in *Bezenb. Beitr.*, III, p. 325.

this process of form-transfer or analogy in its general bearings, and especially would try to establish the limits within which it must keep The following may be given as a preliminary rule which will be sufficient for many cases: When a form A defeats a form B and crowds it out, A and B must have one element x in common which distinguishes them from similar and related forms, *i. e.*, $A = x + a$, $B = x + \beta$. But the supremacy of A and the displacement of β by a depends on frequency of use." What other factors besides frequency of use enter into the question must be left to further psychological investigation. If it is true, for instance, that Heraclidean $\acute{\alpha}\kappa\tau\acute{\omega}$ owes its rough breathing to $\acute{\epsilon}\pi\tau\acute{\alpha}$, as $\acute{\eta}\mu\epsilon\acute{\iota}\varsigma$ to $\acute{\upsilon}\mu\epsilon\acute{\iota}\varsigma$, frequency of use could hardly be relied upon to explain the victory of one form over the other. Should "seven" really have been so much oftener used than "eight"? In those cases in which the memories of the two terms do not arise absolutely simultaneously, the order in which the motor memories are awakened may play an important part and secure an advantage to the first, unless the memory image of the second is more vivid. These questions, however, cannot be solved on the basis of analogy formations as they are recorded in language, but must be left to the psychological laboratory.

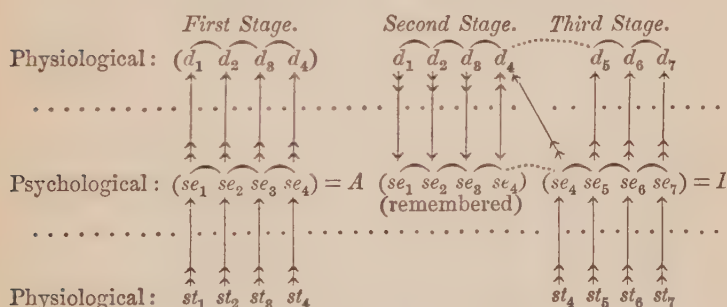
- 6 Association,¹ in the broadest sense of the term, is the recall to consciousness by some conscious element of one or more psychical elements which have passed from consciousness. All external objects affect us through stimuli, which are received by the peripheral organs of sense, transmitted along the centripetal nerves, and appear in consciousness as sensations. Our percepts of

¹ This exposition follows Wundt. Cf. also Ziehen, *Leitfaden* (1896), p. 116; Höfler, *Psychologie* (1897), p. 162.

things consist of a number of sensations (often belonging to more than one sense sphere) which, by a process of associative synthesis, are closely knitted into one compound whole. By this union the different elements of one percept are so firmly welded together that a single element may recall the rest. When the peripheral stimulation ceases the sensation begins to fade, and ultimately disappears entirely; it passes out of our consciousness, and, according to current psychological theory, its existence as a sensation has absolutely come to an end, for an unconscious sensation is a contradiction in terms. There is no psychical Hades in which sensations, as such, may lead a shadow-life like Homer's νεκρῶν ἀμνηνὰ κάρηνα waiting for a sip of dark blood. Yet we know that this vanished sensation may be "re-called," *i. e.*, remembered. And to strike a bridge between the first percept which was due to direct stimulation and its remembered image, it is plausibly suggested that every stimulation produces a change in the cerebral centres which it affects. The alteration in the cerebral centres creates a disposition or diathesis to produce later, under favorable circumstances, a psychical movement similar to the first. Upon the creation and strengthening of this diathesis rests what we call practice. We can train, *e. g.*, our arm for a certain complicated movement by going through the movement a stated number of times. The movement itself completely vanishes, — it certainly does not continue to exist in a faded form, — but the complicated movement may thereafter be repeated with great exactness, which forces us to conclude that the ability to perform this movement in this manner has meanwhile remained latent in the cerebral centres. This latent disposition we call diathesis. Any diathesis, however, may at any time appear as an

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element of consciousness when it receives a new stimulus from without. In the case of percepts, consisting of a number of sensations, the union of these is so close that it is only necessary to recall into consciousness one of its elements in order to recall most of the rest. So that, generally speaking, any conscious percept may arouse to psychical life any former percept which has become unconscious, provided that the two have one element in common. This common element is the associative link. The process of association, then, never takes place between whole ideas, but between some identical elements of these ideas which carry the remainder in their train. The whole may be illustrated by the following diagram, in which the percept *A* is the result of a union of the sensations se_1 to se_4 produced by the stimuli st_1 to st_4 . (First stage.) After a while they pass from consciousness, leaving behind the functional dispositions d_1 – d_4 . (Second stage.) If, now, a new percept *B* enters consciousness which unites the sensations se_4 – se_7 (the results of the stimuli st_4 – st_7), the conscious element se_4 of the percept *B* brings back to consciousness the element d_4 and with it the whole percept *A*. (Third stage.)



7 The importance of the process of association in its various forms for our psychical economy cannot be over-

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rated. Language, both in its words and in its structure, reflects an associative grouping of the contents of consciousness which is not dependent upon the individual's choice, but is social, *i. e.*, common to many individuals, and which, by being fixed in language, has become stable and compulsory for subsequent generations, interfering, to a certain extent, with the play of arbitrary, individual associations, while enforcing upon all members of a linguistic unit the uniform acceptance of a set of ready-made associations.

Here, however, we must deal not with association in general, but only with those linguistic disturbances to which it often gives rise. In language we are accustomed to call the results of such disturbances analogy formations. This term, however, is not the exact counterpart of what is here called "associative interference" or "associative disturbance." In the first place the term "analogy formation" is sometimes restricted to those cases in which one word interferes with the *form* of another word. The term "associative interference," on the other hand, comprises both those cases in which the form (*μορφή*) of one word is adapted to that of another word (formal or morphological analogy) and those in which the meaning (*σημασία*) of one word has been affected by that of another word (semantic analogy).

Again, the term "analogy" is sometimes used for assimilative changes in words only. Associative disturbances take place not only in the case of two connected words, but likewise in phrases, and in those combinations of words which we call grammatical categories. Examples for all of these are included in the following discussion.

Finally, the term "analogy formation" is wider than

associative disturbance, because it includes the results of analogical creation, the process of which is psychologically different from that of associative interference.

At present, then, the discussion will be confined to cases of associative interference of words, phrases, and word-groups. Illustrative material for these is so plentiful and easily accessible, partly in the indexes of the various grammars, partly in the convenient monograph of B. I. Wheeler,¹ that an accumulation of examples is unnecessary. In the following a few typical cases have been selected as representative of various classes of analogical interference for the sake of comparing the facts of language with such classifications of association as have been worked out by psychologists upon the basis of experimental investigations.²

- 8 Psychologists distinguish two classes of association, namely, immediate and mediate; in the former case the association is by direct connection of two ideas without the intervention of an auxiliary idea; in the latter case the association requires the mediation of a third, auxiliary idea, the presence of which is not realized, as when the word "mater" is associated with the German word "Allmacht" through the intervention of the unattended "alma," which by sound is linked to "Allmacht" and by habitual juxtaposition in a well-known phrase to "mater." For linguistic purposes this second class may be entirely neglected; so that we may confine ourselves

¹ *Analogy and the Scope of its Application in Language* (1887) [in Cornell University Studies in Classical Philology]. This also contains a good bibliography. Cf. also V. Henry's *Étude sur l'Analogie en général et sur les Formations analogiques de la Langue Grecque* (1883).

² Thumb and Marbe's *Experimentelle Untersuchungen über die psychologischen Grundlagen der sprachlichen Analogiebildung* (1901) appeared while these pages were passing through the press. This contains the necessary bibliographical references.

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to cases of immediate association. In this the two chief divisions are the associations by sound and the associations by sense. It is customary to subdivide the latter into intrinsic associations (where the cause of the connection is the identity of one element of the two ideas) and extrinsic associations (where the link between the two ideas does not lie in the nature of the ideas themselves but in their local or temporal contiguity, *e. g.*, when a certain coat is associated with a certain person). This, however, appears to be a logical rather than a psychological division. At any rate the line of division between intrinsic and extrinsic association does not always appear sharply marked, and when "nose" is associated with "mouth," the question whether this association is due to their local contiguity (as Aschaffenburg assumes) or to the fact that they are both parts of the face remains open. In the latter case their association would be parallel to that of "tiger" and "lion," which Aschaffenburg classes as an intrinsic association by co-ordination.

- 9 Comparing the linguistic material of analogy formations with this psychological scheme of associations, it becomes at once apparent that, for the explanation of a number of analogy formations in language, it is necessary to assume, besides the associations (1) by sound and (2) by sense, a third group, namely, associations by function. By this is meant the association of words which neither are related in meaning nor resemble each other in sound, but play the same or a similar part in the construction of a sentence. Paul calls this formal grouping; but as "formal" might be understood to refer to sound also, the term "association by function" seems preferable. This functional grouping produces the mental substratum for such grammatical categories as

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the cases, tenses, numbers, degrees of comparison, etc. That the association by function is a fairly close one may be inferred from the fact that in a number of cases two forms which have nothing in common except their functional likeness show traces of analogical interference. Illustrations are easily found by glancing through the paragraphs on the formation of cases, modes, tenses, etc., of any historical grammar. So in the Oscan dialect the ending of the nominative plural, *-ōs*, of the masculine *o*-stems (*e. g.*, *Abellanūs*) has affected the corresponding case of the relative pronoun and displaced its regular and distinctive ending (*e. g.*, *pūs*, but Latin *qui*) much as in vulgar English the sigmatic plural of nouns has affected the pronoun of the second person, changing "you" to "yous," while in the Latin the reverse process has taken place (namely, *ἵπποι* for **ἵππως* after *οἱ*); similarly the *-s* of the English nominal adverbs "always," "otherwise," "lengthwise" = "lengthways" has influenced other adverbs, as "sometimes" and even, colloquially, "nowheres" (as "noways"), "anywheres." In these cases neither the meaning of the words nor their similarity of form, but only functional likeness, can have given rise to associative connection. By a properly devised method it would undoubtedly be possible to collect experimental support for the claim of purely functional association which so far rests upon a very broad basis of linguistic analogy formation only. The ordinary way of collecting such material by showing or calling out a certain number of words, usually nouns or adjectives, which are to serve as starting points practically precludes the occurrence of functional associations. But a modification of this method by which, mixed with others, words in various grammatical forms (*e. g.*, fastest, fell, richer, wept,

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feet, days) were shown in the hope that they might induce functional associations, did not prove successful. The reason for the failure is probably this, that the real functional value of these forms is destroyed as soon as they are removed from the sentences in which only they could naturally occur. An isolated word retains its phonetic form and, at least partly, also its signification, but function seems to require an adequate setting.

Association by function must then be added to the two classes of association by sound and by sense, and awaits experimental confirmation.

- 10 The association of similar ideas into more or less cohesive groups plays a very prominent part in our psychological economy,¹ but much of it goes on without betraying itself outwardly in the form of the words which stand for the allied ideas. The most elaborate and consistent attempt to arrange its words in congeneric groups according to the similarity of the ideas for which they stand is found in the Bantu family of languages, which "are heard in all the well-watered parts of South Africa, from the Keiskamma River in Cape Colony to the equator in the east, and from Walfish Bay to the Old Kalabar River on the fifth parallel of north latitude in the west." "In the Bantu languages," says Torrend,² "we find no genders based on sex, but instead other *genders* or *classes* of substantives, *based* principally . . . on the *degree of unity and consistency* of those things of which they are the names, as determined by their natural position and shape, their proper motions, effects, rela-

¹ Kares, in *Zt. f. Völkerpsych. und Sprachwiss.*, XVII (1887), p. 176, 315, 385; Bloomfield in *American Journal of Philol.*, XII (1891), p. 1; XVI, p. 409.

² *A Comparative Grammar of the South African Bantu Languages* (1891), p. xvii and p. 63, § 313.

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tive strength, etc.” No better description of a congeneric arrangement could be desired. “The class of most substantives,” Torrend continues, “is generally marked by a peculiar prefix which we term the ‘classifying element’ or ‘classifier’ (a term proposed by the Rev. F. W. Kolbe). There are a few substantives to which no such classifier is prefixed. The proper class of such can, however, be made out from the sort of concord they require.” There are a dozen of such congeneric classes, for example:

1. Class with prefix *mu-* in the sing., *ba-* in the plur.: *mu-ntu* “person”; plural, *ba-ntu*.
2. “ “ “ *mu-* “ “ “ *mi-* “ “ “ : *mu-bili* “body”; plural, *mi-bili*.
3. “ “ “ *in-* “ “ “ (z)*in-* “ “ “ : *in-gombe* “cow”; plural, (z)*in-gombe*.
4. “ “ “ (l)*i-* “ “ “ *ma-* “ “ “ : (l)*i-zuba* “sun”; plural, *ma-zuba*.
5. “ “ “ *bu-* “ “ “ *ma-* “ “ “ : *bu-ato* “canoe”; plural, *ma-ato*.
6. “ “ “ *ku-* “ “ “ *ma-* “ “ “ : *ku-tui* “ear”; plural, *ma-tui*.

The distribution of all nouns in a definite system of congeneric classes which is linguistically reflected by these classifying prefixes vitally affects the structure of the whole language. Thus “an element essential to every pronoun of the third person is a form *derived from the classifier of its substantive*.” And as this element, in turn, connects verbs and determinatives with their substantive, it is easily seen how the whole system of Bantu grammar is governed by this congeneric classification of substantives. So we have, *e. g.*, *u-lede*, “he (= the man, *mu-ntu*) is asleep,” where *u-* corresponds to the nominal classifier *mu-* of the first class; but “he (= the baby, *lu-sabila*, of the ninth class) is asleep” is *lu-lede*; “there is no more grass,” literally, “the grass

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(*bu-izu*, of the ninth class) is no (*ta*) more (*ci*) there (*wo*)" is *bu-izu ta bu-ci-wo*.

In the Indo-European family such arrangement appears only in a very rudimentary form. The grammatical structure laid out on an entirely different plan, which assigned a dominating rôle to gender distinction, was not favorable to it. Nevertheless the very natural tendency to reflect formally the association of kindred ideas is not wholly absent. Bloomfield, who made this topic the subject of an interesting monograph (1891), has collected a considerable amount of material in order to show how certain suffixes have been gradually set apart for some definite grammatical or lexical office, though originally they were entirely devoid of such meaning. This infusion of a definite functional value into an empty formative element he calls "adaptation," and most of his investigation deals with the "adaptation of suffixes in congeneric classes of substantives." It is, of course, at once apparent that this "adaptation" is the outward and linguistic sign of the process of consolidation and grouping by which a proper articulation and arrangement of the mental stock is effected. Glancing, for instance, over the long list of animals whose Greek names terminate in $-\xi$ (stem $-k$, $-ko-$), we are forced to conclude with Bloomfield "that there must have existed in the speech sense of the Greeks the feeling that the suffix $-\xi$ (nominative) was especially fit for designations of animals . . . in other words, that the suffix had adapted itself definitely to such use," or rather, that the percepts of these animals had entered into a close associative connection, forming a group which externally betrays its existence by likeness of termination. The same is true of the group to which father, mother, son, daughter, sister, nephew, etc.,

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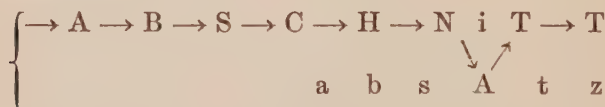
belong; all of which are stamped with the peculiar hallmark of the "family-group," namely, the suffix *-ter*, *-tor*, *-er*, *-or*.

It must, however, be borne in mind that this "adaptation" does not necessarily imply any associative interference, but is just as frequently the source of analogical creation. For we can only speak of analogical interference in those cases in which, of two ready-made, full-grown words or phrases which have risen simultaneously in consciousness, one interferes with the other.

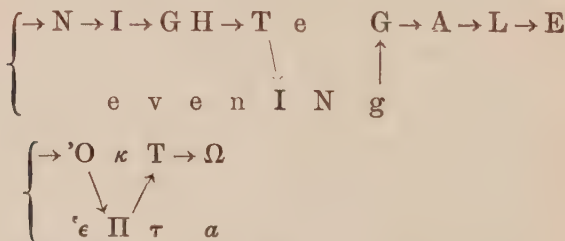
- 11 When, namely, two ideas are so closely bound together that the one invariably calls up the other, the simultaneous appearance of the two ideas in the mental field of vision may lead to a simultaneous innervation of the respective muscles which operate the organs of speech for both. This innervation will not be of exactly the same strength for both sets of muscular movements, and the actual utterance is, of course, the result of the movement of those muscles whose innervation was strongest. Now, whenever the strength of one idea remains uniformly superior during the whole process of its transformation into the spoken word, no external trace of an associative interference is observed. But if the relative force of the two ideas which have risen simultaneously in the field of vision is reversed during the process of utterance, then the word or phrase actually pronounced reflects partly the linguistic symbol of one idea and partly that of the other. We have, therefore, in all cases of associative interference a sort of fusion, or, still better, a shunting, because the innervation of the muscles of articulation is switched, as it were, from the track of the first word to that of the second. German writers frequently refer to this as a "derailment" (*Entgleisung*), an expressive term, which is objection-

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able only on the ground that it may be regarded as implying something abnormal and disastrous, while associative interference in language is a perfectly normal process. The psychological process which leads to analogical interference may be graphically illustrated as follows in one of the many slips of the tongue collected and discussed by Meringer and Mayer (1895). (That part of each word is printed in capitals which, owing to a sufficient innervation of the muscles of articulation, is actually pronounced, while that part of each word which is only mentally present but not linguistically realized is given in lower case type. The arrow indicates the course of effective innervation.)¹ A person intends to say "Abschnitt," simultaneously the synonym "Absatz" rises in his mind, by a *lapsus linguae* he says "Abschnatt":



In exactly the same way the Modern English "night-ingle" (Old English "*nihte-gale*") may have arisen by associative interference of "evening" (Sweet) and Greek ὀππῶ of the dialect of Elis by interference of ἐπτά:



¹ For the sake of convenience the conventional spelling has been kept; the associations are, of course, not of letters but of sounds, hence phonetic spelling would be more appropriate.

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Such analogical interference may be claimed for a number of words which belong to one congeneric class, as when an original *ὄρταξ (cf. Sanskrit *vartaka*), according to Brugmann's plausible suggestion, is changed to ὄρτυξ after κόκκυξ, ἰβυξ, etc.

$$\left\{ \begin{array}{ccccccc} \rightarrow 'O & \rightarrow P & \rightarrow T & a & \Xi \\ & & \searrow & \nearrow & \\ & \iota & \beta & \tau & \xi \end{array} \right.$$

But in the majority of instances new members of a class were formed at the very outset with the suffix or other formative element which was regarded as the label of that particular class, so that these are the result, not of analogical interference, but of analogical creation. Words like the Modern English "starveling," "worldling" are clearly entirely new formations after an old type represented by Old English *dēorling*, much in the same way in which *saxētum* was formed after *laurētum*, *aesculētum*, *dumētum*. Psychologically the difference is marked, because in the former case two words existed in the language, and the form of one was slightly changed to conform to the other; in the latter case only one word existed in the language and a new one was created after its model. Analogy here does not interfere, but it guides in shaping linguistic innovation and links them to the old speech material. After a certain linguistic stock has once been acquired really original additions are excessively rare. A really brand new formation is so rare that in the economy of actual speech it plays almost no part at all; even the much quoted invention of J. B. van Helmont, "gas," does not stand isolated, for he says himself: "Ideo paradoxī licentia in nominis egestate halitum illum 'gas' vocavi *non longe a 'chao' veterum secretum.*"

- 12 This analogical creation may be either direct or inferential. It is direct when a new form is immediately fashioned after an already existing one, as in all cases cited above. In cases of functional analogy we start with two existing derivatives (formative or inflectional) of the same root, and, taking the relation of these two derivatives to each other as a model, proceed to form similar pairs. From the series "hold, held, held," "meet, met, met," identity of the past participle and the preterite may be inferred; this once accepted and applied to other strong verbs yields the vulgar English preterite "I seen"; and conversely the original preterites, "shone," "stood," "sat," have, in standard Modern English, supplanted the original past participles, while the similar use of "took" for "taken," though old, is regarded as vulgar. The relation of the present vowel in "bite" to the preterite vowel in "bit" suggests in Modern English, "lit" as preterite to "light." In the same way the constant relation of certain nouns to verbs derived from them (*e. g.*, in Greek *τίμᾱ* and *τιμάω* for **τιμά-ε-ω*) leads to the analogical creation of so-called "noms postverbaux" (Bréal) such as *ἦττα* inferred from the verb *ἡττάομαι* (itself an analogical adaptation to its opposite *νικάομαι* of an original **ἡττόομαι* which was derived from the comparative *ἦττων* as *ἐλαττόομαι* from *ἐλάσσω*). In the same way the English formed a verb "to sidle up to" from the old "sidelinge," which, being in reality an adverb (= sidelong = sideways), was regarded as a present participle; and the verb "to grovel" from the adverb "grovelinge." The origin of what Sweet calls "curtailed singulars" is based upon the same principle; a radical -s being mistaken for the plural termination, a singular is formed to this "apparent plural," as "pea"

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to "pease" (= the Old English, collective, weak, plural *pios-an*), vulgar "chay" from "chaise,"¹ "Chinee" from "Chinese." In the same way the boy observed by Lindner² and the girl observed by Keber³ formed a singular "Amaus" to the "apparent plural" "Ameise" after the model of "Maus" — "Mäuse" (with the *äu* in South German pronunciation like *ei*).

Because the process of formation of these complex analogical creations may be logically represented in the form of a proportion, *e. g.*,

$$\begin{array}{ccccccc} \text{τιμάομαι} & : & \text{τίμα} & :: & \text{ἡττάομαι} & : & \text{ἡττα} \\ a_x & : & a_y & :: & b_x & : & ? \end{array}$$

it is usually called proportional analogy. The earliest grammatical notice of it is probably in a scholion of Proklos⁴ to Plato's *Kratylos*, which professes to be a quotation from the lost works of Demokritos; according to him one reason why language should be regarded as based on *θέσις* (agreement, convention) is the frequent lack of uniformity of formation (*ἡ τῶν ὁμοίων ἑλλειψις*), and as an illustration he asks: *διὰ τί ἀπὸ μὲν τῆς φρονήσεως λέγομεν φρονεῖν, ἀπὸ δὲ τῆς δικαιοσύνης οὐκ ἔτι παρονομάζομεν;* a clear case of proportional analogy:

$$\begin{array}{ccccccc} \text{φρόνησις} & : & \text{φρονεῖν} & :: & \text{δικαιοσύνη} & : & * \text{δικαιεῖν} \\ a_x & : & a_y & :: & b_x & : & ? \end{array}$$

On the basis of the linguistic data it is frequently im-

¹ "How shall we go?" inquired the captain; "it is too warm to walk." "A chay?" suggested Mr. Joseph Tuggs. "Chaise," whispered Mr. Cymon. "I should think one would be enough," said Mr. Joseph Tuggs aloud, quite unconscious of the meaning of the correction. "However, two chays if you like." Dickens' *Sketches*, p. 346, quoted by Storm, *Engl. Philol.* (2d ed.), p. 800.

² *Aus dem Naturgarten der Kindersprache* (1898), p. 101.

³ *Zur Philosophie der Kindersprache* (1890), p. 33. Both quoted by Ament, *Die Entwicklung von Sprechen u. Denken beim Kinde* (1899), p. 166.

⁴ *Lehrs, Sprachphilosophie d. Alten*, I, p. 13; II, p. 5.

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possible to distinguish between cases of analogical interference and of analogical creation. In the case of Modern English "depth" and "length," for instance, we can hardly decide the question whether they were entirely new analogical formations from the adjectives "deep" and "long" or analogical adaptations of the already existing Old English forms "diēpe" and "lengū" to the type represented by Old English "trēowp," "pīefp." But this apparent likeness of the results does not imply likeness of the psychological processes.

- 13 Phonetic alterations which are the result of association by sense alone are comparatively small. The obvious reason is that the purely semantic tie by which such words are held together is not effective enough to produce an actual derailment of the innervation. For an analogical change of gender it seems sufficient, so that Latin "aestatem" changes its feminine gender in French in order to accommodate itself to the masculines "automne," "hiver," and "printemps" simply because it belongs to the same semantic group, an adaptation which is responsible for much shifting in gender. In the same way the meaning of a word may be analogically changed so as to conform with that of another word semantically associated with it. When,¹ for instance, *constantia* was used metaphorically to denote a certain mental quality, it "induced" a similar change in its opposite² *mobilitas*. In the process of speech mixture the close association of two partly

¹ Cf. e. g., Karl Schmidt, *Die Gründe des Bedeutungswandels* (in the Program of the Kgl. Realgymnasium zu Berlin, 1893-94), p. 32.

² Cf. in general on the associative interference of contrasted words, Brugmann, in the Index to the Grundriss, p. 169, s. t. "Ausgleichung gegensätzlicher Begriffe," and Sitz. Berichte d. Kgl. Ges. d. Wiss. (II), 1898, p. 185.

synonymous words belonging to two different languages often produces important semantic changes by changing the semantic area of one of them so as to make it absolutely conform with that of the other. So Mrs. Humphry Ward¹ uses "overdrive" in the sense of the German "übertreiben" (= "exaggerate") when she says "overdriven rationalism," and "you overdrive your duties."² But phonetic alterations will in most cases be found to involve a partial likeness of form as well as semantic similarity. The reason for this is that a sound or syllable which the two associated words have in common offers a point of contact, the switch, so to speak, by which the stronger innervation of the first word is transferred to the second, because in this particular sound or syllable the strong innervation of the first word reinforces that of the second.

So in the lapsus reported by Meringer and Mayer: "Ich habe eine Empfehlung an Sie."

$$\left\{ \begin{array}{ccccccc} \rightarrow I \rightarrow CH \rightarrow H \rightarrow A \rightarrow B \rightarrow E \rightarrow E \rightarrow I \rightarrow N \rightarrow E \\ \text{Sie} & & \text{sind} & & & & \text{mir} \\ & & & \text{eh} & L \rightarrow U \rightarrow NG \rightarrow A \rightarrow N \rightarrow S \rightarrow IE \\ E \rightarrow M \rightarrow PF \rightarrow OH \uparrow \text{len} & & & & \text{worden} \end{array} \right.$$

Or in the following of Bishop Potter (27th January, 1901), "evoid" which he immediately corrected to "both avoid and evade."

$$\left\{ \begin{array}{c} \rightarrow E \rightarrow V \xrightarrow{a} OI \rightarrow D \rightarrow E \\ a \end{array} \right.$$

¹ Cf. Kellner, in *Verhandl. d. Versamml. deut. Philolog.*, etc, zu Wien. (1893), p. 426. Bréal, *Essai de Sémantique*, p. 146, with note.

² Other cases in K. Schmidt, *Die Gründe des Bedeutungswandels*, p. 30-31, Schuchardt, *Slavodeutsches und Slavoitälienisches* (1885). Cf. Paul, *Principien*, p. 375, § 283.

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In exactly the same way the original Greek *τριακαστός (where the *a* in *-καστος reflects a syllabic *n*, cf. Sanskrit *triñ-gattama*) is affected by τριάκοντα and becomes τριακοστός:

$$\begin{array}{c} T \rightarrow P \rightarrow I \rightarrow A \rightarrow K \xrightarrow{\begin{array}{c} a \quad \Sigma \rightarrow T \rightarrow O \rightarrow \Sigma \\ \nearrow \\ O \quad \nu \quad \tau \quad a \end{array}} \end{array} \}$$

Again, to the Sanskrit *çvetá*, "white," according to a very plausible suggestion of Bloomfield, a collateral form *çyetá*, "reddish white," arose by associative interference of *gyāmá*, "black."

$$\begin{array}{c} \text{C} \xrightarrow{\begin{array}{c} \nu \quad E \rightarrow T \rightarrow A \\ \nearrow \\ Y \quad \bar{a} \quad m \quad a \end{array}} \end{array}$$

This is the reason why examples for Wheeler's fifth class (likeness of signification and partial likeness of form) are so plentiful and why analogy exercises so strong an influence over slightly differing forms of the same stem in the inflectional system. Everything is here in favor of associative interference; the meaning of the words, which is not only similar but identical, and their form, which differs in only a few particulars. As the short vowel in the Modern English "shed" was introduced from the preterite (Middle English "schēden," preterite "schadde," "schedde"), so the Greek πέπλοχε gave way to πέπλεχε with its *ε* from the present. As the Modern English preterite "sang" continues the vowel of the Middle English preterite singular through the plural, while Modern English "bound" carries the plural vowel into the singular, so in Greek the *o*-grade which belongs to the perfect singular εἶκα is carried into the plural εἶκαμεν, while the weak form which

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belongs to the plural enters the singular in ἐλλήλυθα. (The proper distribution is seen in οἶδα, ἔδμεν.) As the unvoiced finals has, in Modern English, been continued in the genitive singular, *e. g.*, "wife's" (instead of "wive's," cf. "calve's" in "calve's-foot") and even in the plural in some words like "turfs" (for earlier "turves"), so the Latin sigmatic stem *arbo-* changes in the nominative singular its final *s* to *r* because of the *r* in the oblique cases, and Homeric πατέρος has borrowed the vocalization of its suffix (-τερ- for -τρ-) from the accusative πατέρα, while in the Homeric accusative θύγατρα the vocalization of the accusative suffix is that of the genitive.

The result of this process of levelling which constantly and extensively goes on in language is the gradual removal of differences which are not significant as formative elements, but either have always been purely phonetic or have lost their formative value. The distinction, for instance, between strong and weak forms of the suffixes in declension, which plays so prominent a part in some Indo-European languages and which is due to differences of accentuation, is constantly losing ground where it is devoid of all formative value; in Italic, *e. g.*, the triple form of vocalization of the suffix -tōr-, -tōr-, -tr- (represented by Sanskrit accusative singular *dātāram*, locative singular *dātāri*, and dative singular *dātré*) has given way in declension to the uniform -tōr-: Latin *dator* (where the *o* is secondarily shortened, because it stands in a final syllable), *datōrem*, *datōri*; the weakest form -tr- has been preserved in a few derivatives like Latin *vic-tr-i-x* from *vic-tor*, Umbrian *uh-tr-etīē*, where the Latin parallel *auc-tōr-itas* shows the strongest form. The vowel gradation of our strong verbs, on the other hand, which is due to the

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same accentual causes, has suffered less wherever the difference of vocalization became of functional importance, because the different vowels were felt to be the carriers of the tense distinction. The degree of functional importance may be said to be proportional to the power of resistance against analogical levelling.¹

- 14 As we associate words which stand for more or less similar ideas, so we associate words and phrases which stand for the same, or practically the same, idea. For semantic identity (synonymy) is evidently the highest degree of semantic similarity. The associations by identity, either of synonyms of the same language (as "beginning" and "commencement") or of corresponding words of different languages (as "king" and "König" and "rex"), would therefore belong here, as a special group within the intrinsic associations by sense, rather than with the extrinsic associations where they are placed by Aschaffenburg.

Where two words have all semantic elements in common, the associative tie between them must be proportionately stronger than that which binds together in a congeneric group terms which are semantically similar only. So that, even without any additional formal similarity, analogical interference might be expected. But here also analogical interference is usually connected with additional partial formal similarity, and it is not at all certain that *ἧσται*, "he sits" (but Sanskrit *āste*), acquired its rough breathing directly from its association with the synonymous root *éδ-*, "to sit." The first step here may have been a conversion of the *τ* to *θ* in *κάθηται* due to its association with *καθέζεται*, and a

¹ The belief that strong verbs are constantly yielding to weak ones is not well founded. Popular speech transfers oftener than is assumed weak verbs to the strong conjugation.

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decomposition of *κάθεται* into *κατ-ῆ(σ)ται* may have given the rough breathing to the simplex.

When the alteration produced by this association of homonyms is slight, and one of the two words retains by far the largest part of its original form, as in the instance just given, this process still goes by the name of analogy formation. When, however, the associative interference of the second word is stronger and both synonyms have about equal share in the creation of the new form, we are accustomed to speak of contamination. An instance of the latter would be "the labor saving and much needed word thoughtlessly invented by the sable legislator of South Carolina," *insinundo* (from "insinuation" and "innuendo"), which Brander Matthews¹ has preserved, or the "soupspicion" (from French "soupçonner" and English "suspicion") of one of G. W. Cable's² Creole characters, or Stockton's "whirllicane" (from "hurricane" and "whirlwind"). Yet the psychological process is the same in both cases. The difference lies merely in this fact, that in those cases which we call analogical changes there is a shunting back to the original word, or the shunting occurs at the very close of the word, so that the foreign element introduced is necessarily very small, while in contaminations the innervation of the speech-muscles once shifted from the original word to its associated synonym, continues to travel along the track of the latter, and as a consequence produces a more thorough change. In either case we have a fusion, as may be seen in the following diagrams, in which again capitals mark what is actually uttered, while the lower case types mark the parallel track of the associated word or phrase which is not re-

¹ Pen and Ink (1888), p. 57.

² Old Creole Days (1887), p. 161.

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flected in language. Compare, for instance, the diagram of Meringer and Mayer's "contamination" "aufstössig" with the "analogy-change" "Abschnitt"

$$\left\{ \begin{array}{l} \rightarrow A \rightarrow U \rightarrow F \text{ f a l l e n d} \\ \quad \quad \quad \searrow \text{a n} \quad S \rightarrow T \rightarrow OE \rightarrow S \rightarrow S \rightarrow I \rightarrow G \\ \rightarrow A \rightarrow B \rightarrow S C H \rightarrow N \text{ i T T} \\ \quad \quad \quad \quad \quad \quad \searrow \nearrow \text{a b s A t z} \end{array} \right.$$

and their "überstaunt" with Matthews' "insinuendo"

$$\left\{ \begin{array}{l} \rightarrow U E \rightarrow B \rightarrow E \rightarrow R \text{ r a s c h t} \\ \quad \quad \quad \quad \quad \quad \rightarrow S \rightarrow T \rightarrow A U \rightarrow N \rightarrow T \\ \rightarrow I \rightarrow N \rightarrow S \rightarrow I \text{ (n)} \rightarrow N \rightarrow U \text{ a t e} \\ \quad \quad \quad \quad \quad \quad \rightarrow E \rightarrow N \rightarrow D \rightarrow O \end{array} \right.$$

Because of this absolute identity of the process by which both analogical interference and contamination arise, Meringer and Mayer have done wisely not to separate them, but treat all such cases under the general heading of Contamination, distinguishing, however, between the coalescence (Verschmelzung) of two parallel words or phrases and the intersection (Schneidung) of two parallel words or phrases in one sound.

The fusion of phrases, which is of importance because it may produce syntactical changes of construction, proceeds along these same lines: *e. g.*, the contamination in a recent issue of Labouchere's Truth (Jan. 17, 1901, p. 133), "living in what to the Chinese is regarded as wealth" is the result of the two phrases

$$\left. \begin{array}{l} \text{LIVING} \rightarrow \text{IN} \rightarrow \text{WHAT} \rightarrow \text{TO} \rightarrow \text{THE} \rightarrow \text{CHINESE} \quad \text{seems wealth} \\ \text{Living in what by the Chinese} \quad \swarrow \text{IS} \rightarrow \text{REGARDED} \rightarrow \text{AS} \rightarrow \text{WEALTH} \end{array} \right\}$$

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Similarly in Max Halbe's *Mutter Erde* (p. 118),
 "Meinethalben lass er reden" from

$$\left\{ \begin{array}{l} \text{MEINETHALBEN} \rightarrow \text{LASS ihn reden} \\ \text{meinethalben} \quad \text{mag} \quad \text{ER} \rightarrow \text{REDEN} \end{array} \right.$$

But the same page of the same play furnishes an example where the original phrase is left only for an instant and then resumed: "Mit der Predigt scheint als wenn's lang dauert" from

$$\left\{ \begin{array}{l} \text{MIT} \rightarrow \text{DER} \rightarrow \text{PREDIGT} \quad \text{scheint's} \quad \text{ALS WENN'S LANG DAUERT} \\ \text{Die Predigt} \quad \text{SCHEINT} \quad \text{lang zu dauern} \end{array} \right.$$

In the Viennese of Schnitzler's "Freiwild" a past participle "wollen" (for "gewollt") is so developed. First in phrases like "Der hat ja fort wollen" (p. 16) for

$$\left\{ \begin{array}{l} \text{DER} \rightarrow \text{HAT} \rightarrow \text{JA} \rightarrow \text{FORT} \text{ gewollt} \\ \text{Der hat ja fort gehen} \quad \text{WOLLEN} \end{array} \right.$$

and then independently in "Was hat dieser Mann von Dir wollen?" (p. 147) and "Was hat man von dir wollen?" (p. 148). To judge from the *Fliegende Blätter*, the Bavarian of Munich seems to contaminate consistently

$$\left\{ \begin{array}{l} \text{ICH} \rightarrow \text{HAB}' \rightarrow \text{AN} \rightarrow \text{DICH} \quad \text{gar nicht gedacht, and} \\ \text{Ich hab'} \quad \text{dich} \quad \text{GANZ} \rightarrow \text{VERGESSEN} \end{array} \right.$$

In the same way arose Latin constructions like the isolated genitives with "recordari" in Cicero after "non oblivisci,"

$$\left\{ \begin{array}{l} \text{RECORDATUS} \rightarrow \text{SUM} \quad \text{flagitia ea} \\ \text{non oblitus sum} \quad \text{FLAGITIUM} \rightarrow \text{EORUM} \end{array} \right.$$

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or the strange construction which passes all parsing, "mea interest" after "mea refert."

- 15 Just as two words or two phrases of the same meaning may produce a new word or phrase which contains parts of both of its parents, so also the structure of grammatical paradigms does not escape contamination. It is under this larger aspect that the phenomena of "composite inflection" (to which Osthoff, in his suggestive monograph (1899) on what he terms "Suppletivwesen," has lately called renewed attention) should be viewed. The term "composite inflection" designates those cases in which the paradigm of a word is not based upon the same stem throughout, but in which either different derivatives of the same root or two entirely different roots are fused into one paradigmatic whole. For by apparently the same process are combined an *n*-stem and an *r*-stem in the declension of the singular of *οὐδάρ*, *οὐδατος* (for *οὐδῆτος*); a vocalic stem for the singular and an *s*-stem for the plural in the declension of *vī-s*, *vīr-es* (for **vīs-es*); the stems *magnific-* and *magnificent-* in the comparison of this adjective: *magnificus*, *magnificentissimus*; the stems *fini-* for the infinitive and **finisc-* for the imperfect in the French conjugation of verbs of the fourth class: "finir," "je finissais"; and finally two entirely different stems in *malus* and *passimus*, "bad" and "worse," *furio* and *insanivi*, "go" and "went."

Curtius, who was the first to discuss this last variety of composite inflection (namely, where two or more different roots are fused in one paradigm, *e. g.*, *ὁπάω*, *ἰδεῖν*, *ὀφθαίμαι*), suggested, in 1858, the following explanation: All general ideas result from a combination of individual ones. The general idea of "going" is abstracted from the ideas of "walking," "running,"

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“stepping,” etc. Individual ideas are therefore older than the general ideas which are based upon them. “To attempt to derive the multitude of individual ideas from general ideas would mean to upset everything that has been established since W. v. Humboldt.” (A most sound remark, which applies, of course, with equal force to all attempts at deriving the meaning of cases, tenses, or modes from some fundamental meaning, a “Grundbedeutung,” an attempt which has value as a logical exercise but no place in a historical investigation). “Such a theory,” Curtius proceeds, “may also be refuted by the lexicon of the Indo-European languages. If these languages had started from a set of fundamental abstract ideas we should expect only *one* root for each one of them, from which, perhaps, a number of different derivatives might be formed, as the general idea became more and more individualized. Just the opposite, however, is the case. For the general idea of ‘going’ in the Indo-European languages is expressed by a variety of roots which phonetically are entirely independent of each other. The two most common ones, Greek *ĩ-* and *βa-*, are even in Homeric times . . . so clearly differentiated that they can be united into phrases like *βάσκ’ ἴθι*, *βῆ ἰέναι*. . . . From the existence of different words we may infer the existence of originally different ideas. The Indo-Europeans, therefore, had terms for individual modifications of ‘going’ before they reached the general abstract idea. The same process is found everywhere. The idea of ‘seeing’ is for the Greeks so far from being one that they resort to three verbs in order to express it in the different tenses. The momentary ‘catching sight of thing’ they denote by *ἰδεῖν*, the durative ‘gazing at a thing’ by *ὀράω* . . .; when they desired to refer to the

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future, and occasionally also to the completed action, they made use of the root $\acute{o}\pi$ -. Only by means of these three were they able to express the idea of seeing. Nor were other verbs for the same idea wanting, which, in turn, denoted other modifications . . . from the combination of which the general idea developed. He who is not intentionally blind learns from such facts that multiplicity precedes unity, and will give up all attempts at operating with general 'fundamental' ideas, a method which is just as absurd in the domain of semantics as is the endeavor to reduce phonetically the mass of really existing roots to a limited number of primitive roots (Urformen)."

In this noteworthy passage¹ are contained all the germs of the subsequent explanations of Tobler (1860),² Heerdegen (1890)³ and Osthoff (1899). They all substantially agree that "slight alterations in meaning lie at the bottom of composite inflection." This is undoubtedly true for a number of cases. Languages which, like the early Indo-European, made much of the distinction of the kind of verbal action⁴ must have found that in combining this with a tense-system certain tenses were particularly suited to certain kinds of actions (*e. g.*, the present tense to the durative kind of action), while others were antagonistic. And if differences in the kind of action were really expressed at the outset by a different set of roots (as Curtius suggested for $\acute{o}\pi\acute{\alpha}\omega$ and $\acute{i}\delta\epsilon\acute{\iota}\nu$) the unavoidable result must have been to set aside certain roots for certain tenses. No aorist could be

¹ Curtius, *Grundzüge* (1858), p. 78.

² In Kuhn's *Zt.*, IX (1860), p. 241.

³ In Reisig's *Vorlesungen über lateinische Sprachwissenschaft*, neu bearbeitet v. F. Heerdegen, II (1890), p. 87 f. Cf. also Brugmann's *Griech. Gramm.* 3, (in I. v. Müller's *Handbuch*), p. 481, § 541.

⁴ Cf. Herbig, *Aktionsart u. Zeitstufe in Indog. Forsch.*, VI, p. 157.

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formed from ὁπδω, no present from ἰδεῖν, just as βιβάζω is confined to the present tense, and no continuative imperfect *persuadebam* can be formed from *persuadere*, because the former implies iterative, the latter perfective action. The composite inflection is here due to an *inherent semantic defectiveness* of the verb.

Parallel to this go cases where the *formal defectiveness* of the verb necessitates borrowing. So *locutus* supplies the active perfect participle to *dicere*, "I was compelled," the preterite to the preterito-present "I must," *usurpari* the passive to the deponent *uti*, as in Cicero's Orator (LI. 169): "post inventa conclusio est, qua credo *usuros* veteres illos fuisse, si iam nota et *usurpata* res esset," for the two words were synonymous and interchangeable in the active also, as in Cicero's Philippic (I. i. 1): "Graecum verbum *usurpavi*, quo tum in sedandis discordiis *usa erat* civitas illa."

Nor is it necessary that these formal deficiencies should be primary. *Fallo* and *arguo* could have formed their own past participles, but on account of the adjectives *falsus* and *argutus* they were forced to substitute *deceptus* and *convictus* respectively. Such secondary deficiencies, due to the loss of forms, must have been a fruitful source of composite inflection. It will probably be found that a greater number of cases belong here than to the preceding class. In every case the problem is to determine the causes which led to the loss of a form.

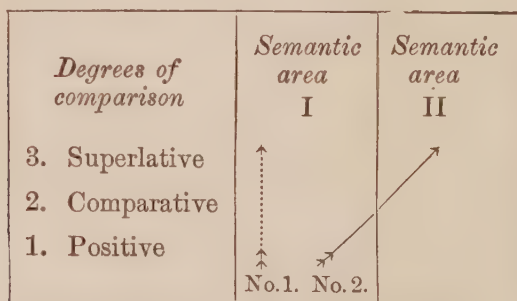
Semantic deficiency is also largely assumed for the cases of composite comparison (*e. g.*, "good," "worse"). Brugmann, for instance, holds that "ἀγαθός, ἀπείων and ἀμείων, ἄριστος were fused into one system because one adjective on account of its root-meaning was incapable of supplying all forms necessary for the system." It is very doubtful, however, if it is safe to

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apply this principle uniformly to all classes of composite comparison. It would, perhaps, be better to distinguish here between at least three different classes, namely, (1) cases of clear semantic defectiveness, (2) cases in which comparison implies semantic change, (3) cases in which semantic change implies comparison.

Cases of semantic defectiveness we have wherever the adjective stands for an idea "which," in Tobler's words, "both as regards quantity and quality implies completeness, because it stands for a quality which has reached the limit of all development and precludes comparison . . . and it would appear that a stem which stood for such a complete idea (*der die totalität bezeichnende stamm*) was exempt from comparison." Clear cases are "dead," "half," "vivid," "aureous." That adjectives like "ἀγαθός," "malus," "good," lack forms of comparison, because "the homespun wit of the people in partial agreement with subsequent philosophy, dimly divined that qualities like 'good' and 'bad,' 'much' and 'little,' were absolute and complete", (Tobler) is not impossible, but seems questionable and at least unproven.

The second class in which gradation causes a concomitant semantic change might be graphically represented by this diagram,



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where the dotted arrow No. 1 illustrates comparison without, and the arrow No. 2 comparison with, semantic change. Such semantic changes were not necessarily intellectual, *i. e.*, connected with the logical side of the concept; they were, perhaps, oftener of an emotional character. When in Sanskrit the idea of "good" was raised to the comparative and superlative degrees, the emotional element of desire may have become more prominent,¹ hence the comparative *varīyas* and the superlative *variṣṭha* from the root $\sqrt{\text{var}}$ "to prefer"; if the connection of Oscan *valaimo*-, "best," with Latin *velle* is correct, this would be a similar case; Latin *pessimus* and *peior*, whose connection with *ped*- Thurneysen has lately vindicated, would furnish another parallel. When the idea of "bad" is raised to the comparative and superlative the idea of inferiority in a struggle enters; *pessimus* is he who is *sub pedibus* (Ov. met., XIV. 490), or the person "spurned." This process by which a given idea suffers semantic modification by passing through the stages of gradation is psychologically different from that of the third group.

This is made up of words which stand for originally independent ideas, which, however, may be fitted into a graded system. In Latin *postulo* (in the Comic Poets often not stronger than *volo*; so Terence, *Andria*, 238), *posco*, and *flagito*; *ingredi*, *currere*, and *advolare*; *abire*, *excedere*, *evadere*, and *erumpere* may be grouped, as is done here, in an ascending series which corresponds essentially to the gradation of our adjectives, a similarity which has led Sanskrit grammarians to sanction the use of the adjectival suffixes of comparison in the adverbial accusative feminine with conjugational forms, *e. g.*, *pacati*, "he cooks," *pacatītarām*, "he cooks better," as if

¹ Cf. below on the change of dominant elements, p. 309.

one were to say in Latin **coquit-ius*. Just as the verbs quoted above, so the adjectives *patiens*, *durus*, and *crudelis* form an ascending series at the beginning of one of Pliny's letters (II. x. 1): "Hominem te patientem, vel potius durum ac paene crudelem," where Döring (1843) very properly notes that *durus* and *crudelis* form the comparison to *patiens*; in other words, *patiens* is positive, *durus* comparative, *crudelis* superlative, with this peculiarity that the comparison is not formally expressed. A good example of this kind is the comparative ἄμεινον to the positive ἀγαθόν. *Ἀμεινον, according to Brugmann's convincing explanation, is the neuter singular of an adjective stem ἀμει-vo- which semantically may have borne the same relation to ἀγαθο- which *durus* bore to *patiens*. When it entered into a lasting union with ἀγαθός as its comparative its form was very naturally adapted to the comparatives in masculine -ων, neuter -ον, and the adjective *ἀμει-vo-ς, ἄμει-vo-ν changed to ἀμεί-ν-ον, ἄμει-ν-ον.

It is impossible to decide always whether a given case belongs to the second or the third of these classes, because although the psychological processes vary, the results are often externally alike.

There seems to be no warrant for believing that all cases of composite inflection must be due to one of the causes suggested by Curtius, and for assuming with Cauer that wherever the composite inflection of verbs cannot at present be justified upon Curtius' theory, the fault lies with our defective knowledge of the original and primitive meaning of the stems in question, which does not affect the principle of explanation. Such a view is methodologically unsound and has led to a harmful inflation of many a theory which was adequate for the explanation of some cases, but naturally collapsed

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when it was made to account for things which had only an external similarity.

In the discussion of analogical interferences of words and phrases, we have had a sufficient number of cases in which two associated words or phrases were more or less fused with each other. It is impossible to give in every case the reason why this fusion actually did take place; while we are entitled to infer *ex post facto* an unusually close association as the root of analogical interference, the exact causes for this closeness in a given individual case often remain hidden. In exactly the same way in inflection, different derivatives and different roots are often fused, not because there was any *need* of doing so, but because the speaker unintentionally slid from one synonym to the other. And as we saw that phonetic similarity is a great inducement for analogical interference between semantically similar words, so we may also note that in composite inflection the combination of different derivatives of the same root is more frequent than that of entirely different roots. This process of unification of different stems and roots into one inflectional system must not be studied in the most remote and prehistoric times of language, but in languages whose history lies open before us. Here, as in all questions of dynamic principles, we must study the living organism, not anatomical specimens. And on the basis of more material than is at present available, it may be possible to trace the various steps which led to composite inflection; how, for instance, two verbs which at first were similar in meaning became fully synonymous and therefore interchangeable in certain surroundings, were then easily fused in their inflection, until the forms of one came to be preferred for some parts of the inflectional system, and finally, in the

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extremest cases, gained sole and absolute control over their territory. Such investigation would lie on the border line of style and grammar, and by imperceptible stages lead from the former to the latter.

Attention has been called to the convergence of meaning and synonymous use of *usurpare* and *uti* by which the former supplies formal deficiencies (the passive) of the latter. But in the similar case of *facio* and *fi* no deficiency of the former explains the fact that, in Italic, a part of the passive has been pre-empted by *fi*. That **facior* is neither formally nor semantically impossible is shown by *factus* and *faciendus* (for sporadic forms like Titinius' *faciatur* are hardly remnants of an earlier complete inflection). We have here an extreme case, the end and final result of inflectional contamination. Faint beginnings of the same process, which, however, was arrested too soon to leave any grammatical traces, may be found in the use of *perhiberi*, which in the Latin Comedians, notably in Plautus, is frequent for *dici*, as in Terence's Adelphi (iii. 4, 58 = 504), "si vos voltis perhiberi probos" and Plautus' Poenulus (i. 2, 31), "Soror, cogita, amabo, item nos perhiberi, Quam si salsa muriatica esse autumantur." Here are germs from which *perhiberi* might have developed into a passive to *dicere*, gradually crowding out all or some of the forms of *dici* and permanently substituting its own. In exactly such a way *percussi* became the perfect to *ferio*, English *went* the preterite to *go*.

These cases are parallel to the substitution of *bene audire* for the passive of *bene dicere*, ἀποθνήσκω for the passive of ἀποκτείνω; and these substitutions, in turn, are equivalent to Latin *mortem contemnere* for *mortem non timere*, *occasione deesse* for *occasione non uti*. If, like some languages, the Latin had possessed a "negative

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voice" (e. g., Japanese *yukazu*, "I do not go," to *yuku*, "I go") such combinations would have led to another class of composite inflection.

Included in the study of composite inflection must also be cases like the future *feram*, *feres*, *feret*, or the perfect *dixi*, *dixisti*, in which different persons of the same inflectional set are formed with different mode or tense suffixes.

- 16 Of the associations based on the meaning of the words associated there now remains only the association of two words, because they are members of a well-known phrase. In my experiments to which I alluded above these were fairly frequent, as when the printed characters CARRY suggested "Fetch and carry," RAN, "He ran away with the Dutch," HIGH, "High Street," BETTER, "For better, for worse." In those cases in which the word shown was a numeral, such associations were noticeably in the majority, as SEVEN, "We are seven;" FIVE, "Lend me five shillings."¹ There is no case at hand in which the association of words combined into phrases appears to have led to analogical interference beyond, perhaps, a temporary *lapsus linguae*. It must not be confused with the anticipation of the sound which belongs to a subsequent word while the actual phrase is uttered, such as Lay's "effecht of Fichte" and the cases cited by Meringer and Mayer. In these cases the innervation is only slightly ahead of time, but the sound was from the beginning intended for pronun-

¹ It may be stated here that the results obtained by my experiments differ very materially from those just published by Thumb and Marbe (Experimentelle Untersuchungen über die Psychol. Grundl. der Sprachl. Analogiebildung, 1901, p. 34). In their experiments in 87.5% the word associated with a numeral was another numeral. In my experiments of more than a hundred and fifty associations only two showed the association of another numeral.

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dition. What we have here called analogical interference would demand that a word should be affected by another word with which it has frequently been combined in a phrase without any intention of uttering this phrase, as in the following fictitious example, where the vowel of "teach" has supplanted that of "carry."

$$\rightarrow I \rightarrow L \rightarrow L \rightarrow C \rightarrow R \rightarrow R \rightarrow Y \rightarrow I \rightarrow T \rightarrow M \rightarrow Y \rightarrow S \rightarrow E \rightarrow L \rightarrow F.$$

$\downarrow \uparrow$
 f E t c h

The words associated in phrases usually differ semantically, functionally, and phonetically, and the associative tie is, therefore, too weak to lead to analogical disturbances.

In colloquial speech cases which betray a fairly close cohesion of the members of certain phrases are not frequent but do occur. In these instances a word will quite inappropriately drag its mate after it, as in the two passages below, both taken from a recent novel, the first belonging to a rustic character, the second to the author himself:— "'I may have my faults,' continued Clowerybank, '. . . but I am grateful to Providence that conceit was never one of my besettlements. I know I never was much to look at, but that is no *Trial-by-jury* to my patience, for I hold that a handsome man is first-cousin-once-removed to a barber's block.'" And "If from this town a traveller walks towards the sun-rising, he will soon find himself in a very Inferno of both blazing and burnt-out blast-furnaces, deep, dark pits, and weird heaps of cooling slag which look like the remains of some giant oyster feast; but if he turns his steps Westward-As, he will come to a delightful land of meadows and orchards."

¹ T. Fowler, *A double Thread*, p. 114, 333.

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Such cases arise whenever the innervation continues unchecked along a beaten track, and are used occasionally as a comic motif.

- 17 As the association by sense may lead to changes in the form of words, so the association by sound may affect the meaning, as when *curia* influences the meaning of *cour* (from *cohors*).¹ A very common case is that of two words which have either the same or very similar phonetic form; the meaning of the unfamiliar one is assimilated to that of the better known. An often quoted example is the Modern German "Wahnwitz" (and "Wahnsinn" formed on its analogy), the first member of which is now felt to contain the stem of the verb "wähnen" = "to opine," "to think wrongly," whereas in reality the Old High German "wānawizzi" shows it to be the negative prefix "wāna" = "without." A parallel case is that reported by Colonel T. W. Higginson.² "Doctor" Hackett of Newburyport, an eccentric character, was annoyed by vagrant boys, who delighted in filling the key-hole of his hut with gravel and small stones. "'Such conduct,' he said in his Micawber-like way, 'I should call, sir, — with no disrespect to the colored population, — niggardly;'" and similar is the reading of the meaning "blue flannel shirts" into the word "indigoes," "partly from the color of the articles designated and partly from their office; they were blue 'undergoes.'"³ Unless the two words are already of identical form this process usually involves formal changes also, by which the less-known or unknown word assimilates itself phonetically to the better known word; a levelling similar to the orthograph-

¹ Cf. Schmidt, *die Gründe des Bedeutungswandels* (1894), p. 29.

² *Contemporaries* (1899), p. 346.

³ Holland, *Sevenoaks* (1886), p. 130.

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ical adaptation, which changes "rime" into "rhyme" because of a preposterous etymological connection with *ῥυθμός*. So, e. g., "brydguma" (*guma* is equivalent to *homo*) was changed to "bridegroom." Under the name of "popular etymology" (Volksetymologie) this phenomenon has received exhaustive treatment. Foreign words are most frequently exposed to this tendency of assimilating the foreign sound series to native and familiar sound combinations, sometimes with, sometimes without, the attempt to read an intelligible meaning into the strange complex. For there are cases where practically no semantic improvement results, such as English "Happy David"¹ or "Alfred David" for "affidavit," German "supp'nklug" for "superklug," where the adaptation remains formal; while in the change from the Old German "horotûbil" to "Rohrdommel" the first member is made to contain an allusion to the places favored by the bird. And when this same "Rohr-" of the word "Rohrsperling" is further changed to "roher" in the phrase, "schimpfen wie ein Rohrsperling (roher Sperling)," = "to curse like a trooper," the change from the unintelligible compound to the more appropriate adjective "uncouth, bad-mannered," is a semantic improvement. A case like "extry munction"² for "extreme unction" stands on the border line. Brahmanical writers³ perform remarkable feats of ritualistic exegesis upon the basis of such semantic identification of phonetically similar words. In these cases it is not the grammarian who speaks, but the philosopher to whom word and thing are the same, and

¹ Holland, Sevenoaks (1886), p. 240.

² Frederic, The Damnation of Theron Ware (1896), p. 62.

³ Cf. e. g. Aufrecht's note to Aitareya Brâhmaṇa, i. 2, 3, p. 432; Roth on Nirukta, p. 221.

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who, therefore, concludes that similar words imply similar things. Elsewhere, as in Abraham a Santa Clara, this play upon words (punning) has become a stylistic peculiarity.

In all cases of so-called popular etymology it is necessary that the meaning of one of the two words should be unknown, that of the other familiar. Where both words are in ordinary use they maintain their independence unless similarity of sound is accompanied by a certain semantic affinity. As in the associations which are based upon similarity of sense alone, so in those brought about by similarity of sound alone the associative tie is only rarely, and under special conditions, strong enough to lead to associative interference.

The Old English "bēodan, bēad, boden," "to offer," "to command" (= German "ge-bieten"), has gradually transferred its meaning to "biddan, bœd, beden," "to ask" (= German "bitten"), so that in Modern English the former verb is entirely absent. The confusion was helped by the semantic relation of the two verbs. Similar is the case of Old English "flēon," preterite singular "flēah," preterite plural "flugon," preterite participle "flogen," "to flee," and "flēogan," preterite singular "flēag" (flēah), plural "flugon," preterite participle "flogen," "to fly," where the identity of a number of forms has led to confusion so that "to fly" is used constantly, instead of "to flee," and Sweet marks "flee" as obsolete in the spoken language. In this case the forms common to both verbs have formed the bridge for semantic contamination, just as an identical syllable or sound was seen above to facilitate formal contamination.

Finally, phonetic similarity may lead in some cases to functional assimilation. So when *-ly* becomes the recognized termination of the English adverbs, original

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adjectives like "daily," "yearly," acquire adverbial function. Of the same character is the treatment of Latin neuter plurals in *-a* as feminine singulars in French, and the use of "oncet" (for "once") as an ordinal (= first) mentioned below.

LECTURE IV

CHANGES IN LANGUAGE

II

Phonetic Change

- 1 THE discussion so far has dealt with those changes, both phonetic and semantic, which are distinctly imitative, in the wide sense in which Tarde uses this term. The change was either the result of borrowing from the speech of another individual, the usual process by which changes spread and are perpetuated in a community; or it was the result of associative disturbance when one word, phrase, grammatical form, or construction interfered with another within the same individual's vocabulary. In either case the change arose outside of the word, form, phrase, or construction, and was transferred bodily to it. The problem always was to account for this transfer.

There remain now those changes which are neither imitative nor analogical, but for which relative independence and originality must be claimed. Although it is true that in general the same fundamental causes lie at the bottom of both phonetic and semantic changes of this kind, the difficulty of approaching these last causes and the intricate nature of the problem make it advisable to treat phonetic and semantic changes separately.

- 2 Original phonetic changes naturally fall into two large classes, namely, (1) those which take place during

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the process of speech production and in the same individual, and (2) those which take place in the transmission of speech from one individual to another, being connected either with the auricular perception of speech sounds or with their reproduction. This second group, therefore, takes place in a second individual.

- 3 In taking up the first of these classes, it will be convenient to distinguish between immediate causes of phonetic change and ultimate causes of phonetic change. This distinction is of considerable importance, because the linguist is primarily concerned with the investigation of immediate causes, while the ultimate causes lie outside his province and often are beyond his ken. For example, it will appear in a subsequent paragraph that certain phonetic changes are due to an increase in the speed of utterance (§ 9). This acceleration, then, is the immediate cause of these phonetic changes. But behind it must lie other, more remote causes. It is a perfectly just question to ask: Why did such an acceleration take place? Linguistic science cannot find an answer to this question. For assuming for the moment that the correct answer were, "Because certain changes in the cerebrum have taken place," it is not the linguist who answers, but the student of physiological psychology. And the same is true of a still more remote question, "What produced these cerebral changes? The climate?" I do not mean to say that the linguist must not ask these questions, but simply that as linguist he cannot find an answer to them in the particular objects which he studies. These answers must be sought and found in other departments of science.

There are four such remote causes which usually appear in the discussion of speech changes: (1) the influence of climate and environments, (2) the influence

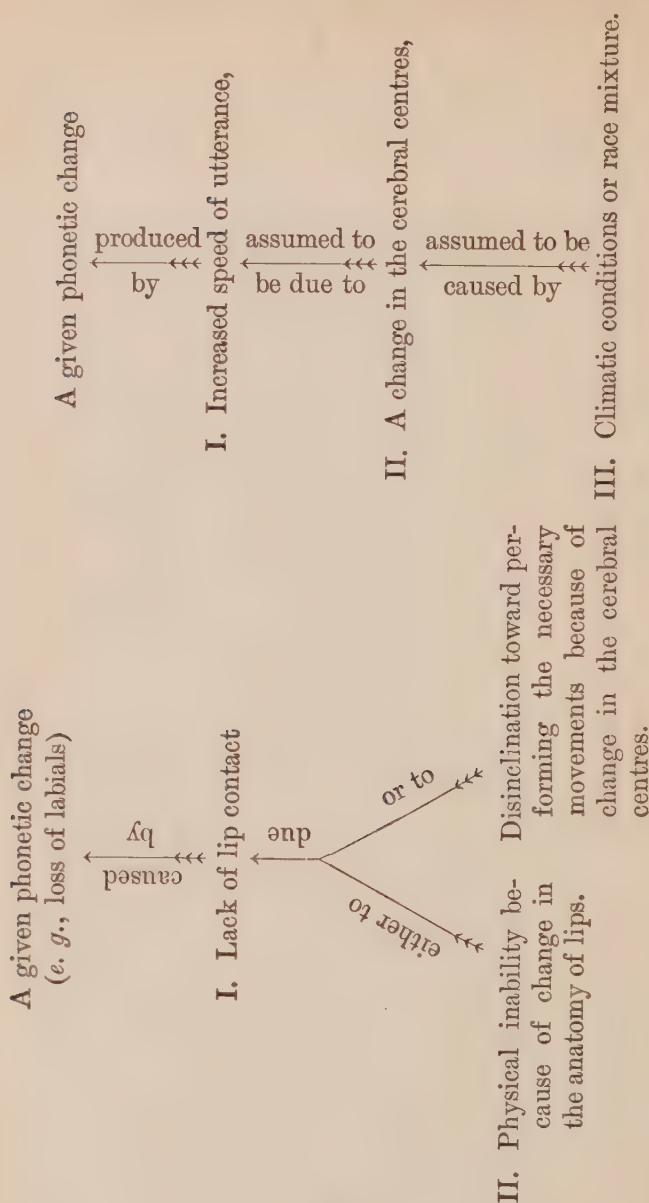
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of race mixture, (3) the anatomical change of the organs of speech, and (4) physiological changes in the cerebrum. The first two of these are three degrees removed from any individual phonetic sound, while the other two are two degrees distant.

The two diagrams on p. 192 will serve to illustrate this point more fully. The first represents the relation between a given phonetic change and its assumed anatomical or cerebral causes, the second the relation of climatic conditions or race mixture to a given phonetic change.

- 4 References to climatic or geographical influences upon either the vocal organs or the brain are generally too vague to be satisfactory for scientific work. An alleged preference of the inhabitants of mountainous districts for "harsh" gutturals appears early (1858) in Lotze's *Mikrokosmos*, and has often been repeated. But so long as ethnologists and physiologists do not furnish more definite data of climatic and geographical influences upon the physical or psychical states of man, such a theory is nothing more than a vague hypothesis. The same is true of the "indirect influence" of race mixture on language to which Hempl¹ has lately (1898) alluded. Through the assimilation of alien races he assumes such psychical and physical modifications may be brought about in a given population as will be reflected in their speech. "While the English of America will probably never be affected by the German spoken among us, I should not be surprised if the very large admixture of German blood should so modify the average American of the future that his English will undergo changes that it might not have undergone except for this fact." This theory is not improbable, but it requires stronger

¹ *Transact. Amer. Philol. Ass.* (1898), p. 45 ff.



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support than its general plausibility. Both theories can for the present offer no help toward an explanation of phonetic changes. We must wait until at least a modicum of definite concrete facts is available, so that they may be adequately tested. This can be done so much the more easily because such influences (even when established) can have no direct bearing upon phonetic changes, but can only act as mediate causes of sound modifications.

- 5 The assumption that anatomical changes in the organs of speech lie at the bottom of phonetic changes is equally old. The assurance with which this claim has sometimes been put forth is inversely proportional to the evidence produced to support it. Lotze (1858), in the same passage of his *Mikrokosmos*¹ to which reference has just been made rather guardedly referred to it in closing his general remarks about the physical influences on the formation of speech: "That the bodily organization should have a share in the conditions of speech will not seem unnatural to those who bear in mind that we are here dealing not so much with an operation of the mental energy itself as with the manifestation of this operation in the form of a physical phenomenon. Here the mind is not at home, and it suffers no loss of dignity by having its medium of expression, namely, sound, and the power of using this medium depend on bodily impulses. In the further development of speech traces of this physiological influence may still be discerned in some of the phenomena. Not merely the general selection of sounds utilized in the language of any particular people may proceed from minute peculiarities in the structure of its vocal organs,

¹ II, p. 223 of the first edition, 1858 = II, p. 231 of the second edition, 1869 = vol. I, p. 613, of Hamilton-Jones' English translation (1885).

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again in part, perhaps, dependent on climatic conditions (*e. g.*, we find widely diffused among the inhabitants of mountainous countries a preference for the harsh palatal sounds and among dwellers in islands for dental consonants), but also the modifications of vowels and consonants in the inflection and composition of words suggests the idea of their being in part at least the result of organic conditions. But the precise nature of these it would be very difficult to state."

Much more boldly Benfey,¹ in 1877, while professing ignorance concerning the interior organs of speech, asserted that "the existence of differences in the structure of those vocal organs which lie open for inspection is universally known." But the only definite illustration given is the case of the Abipones, a tribe of South American Indians inhabiting the territory between Santa Fé and St. Jago, of whom it is asserted that they are unable to close their lips, and hence possess no labials. I do not know upon what evidence this assertion rests. Martin Dobrizhoffer, who spent eighteen years among these Indians, and published, in 1784, a *Historia de Abiponibus* in three volumes, makes no mention of any anatomical peculiarity of their lips, though he devotes a whole chapter to a minute description of the physique of the tribe. Nor does he allude to any absence of labials in his description of the sounds of the language. The only passage which can have given rise to the belief which Benfey cites is in the fifth chapter of the second volume, where Dobrizhoffer states that the savage tribes were in the habit of perforating their lower lips and inserting a reed or tube, called *tembetà*, into the hole. The more civilized converts discarded this appendage, "labii foramine, quippe quod

¹ Nachrichten v. d. Kgl. Gesellsch. d. Wiss. z. Göttingen (1877), p. 548.

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nec lateribus caementoque claudi neque ulla arte coalescere unquam potest, solo remanente, per quod, dum colloquuntur, saliva ubertim profluit aliquando, & in enunciando vocibus tantillum impediuntur."

Merkel,¹ in his *Physiologie der menschlichen Sprache* (1866), cites an anatomical observation of Tourtual (1846),² namely, that among Semitic peoples the pars basilaris ossis occipitis is characteristically developed so that the volume of the pharyngo-nasal cavity is increased. This anatomical peculiarity, Merkel suggests, might be used to explain the existence of the velar consonants (made by an articulation of the tongue and soft palate) in Semitic. But he guardedly adds that "there is no reason why we should not believe that the characteristic development observed by Tourtual is simply an adaptation of these soft and pliable organs [this, then, can refer to the muscular parts only] to the sounds especially cultivated."

Without any physiological support, Scherer³ (1868) suggested that a defect in the development of the muscles which govern the soft palate might be the reason why vowels which are purely oral in other parts of Germany are nasalized by the Austrian peasant. In Paul this theory appears in the discussion of the question why members of a speech unit speak alike. According to Paul,⁴ this is partly due to the "*Zwang der Verkehrsgemeinschaft*," a sociological factor which corresponds to the principle of involuntary imitation referred to above. On the other hand, however, he "can hardly

¹ P. 42.

² *Neue Untersuchungen über den Bau des menschl. Schlund- und Kehlkopfes* (1846), p. 15.

³ *Z. Gesch. d. deut. Sprache*, p. 24.

⁴ *Prinzipien* (3d ed.), p. 56 f., § 41.

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doubt that the peculiarities of the vocal organs are transmitted by heredity from generation to generation, and closer or more distant relationship is therefore undoubtedly [there is a slight increase of confidence in this 'gewiss' when compared with the '*Kaum* zu bezweifeln ist es' of the opening of the clause] to be counted among the circumstances which determine the degree of similarity in the structure of the vocal organs. But it is not the only determining factor. Just as little does change in speech depend *alone* on the structure of the vocal organs."

From the passages quoted it will be seen that really two questions are here involved. First, is there any ethnical difference in the structure of the vocal organs of different nations? Evidence to support this claim is deplorably weak; and, until more and better data are produced, we are at liberty, not to deny, but to doubt their existence, in view of the fact that an infant (using the term in its literal meaning), when transferred from its own ethnic community to some alien race, acquires the foreign language with absolute perfection and ease.

Second, do the speech organs of one and the same ethnical community undergo any changes in the course of time? It is this aspect of the case only which is of importance for our problem. Those who claim that phonetic changes are due to anatomical causes must show, not that different nations differ in the structure of their vocal organs, but that such variations take place in the history of the same ethnic group. So that even those who, on the scanty evidence submitted, are willing to believe that phonological differences of different nations rest upon an anatomical basis, cannot at once proceed to apply the same principle to such changes as arise in the same linguistic community. For this second

proposition, however, experimental evidence seems to be wholly wanting, and it behooves us, therefore, to wait. No facts warrant an extreme statement like that of Osthoff (1879), that "a modification of the vocal organs is *in general* the real cause of phonetic changes in the history of languages." Much less can such an assumption furnish a support for the (unhappily worded) thesis "that phonetic laws admit of no exception." In the essay referred to it rather appears as a deduction from and corollary to that thesis.

- 6 The fourth theory is that which explains phonetic changes as the results of modifications of the cerebral centres. The explanation of phonetic modifications by the assumption of temperamental changes belongs here. For by temperament is meant a definite psychical status, the characteristics of which are reflected in the manner in which the vocal organs are operated. This psychical status, according to the current psychological doctrine of psycho-physical parallelism, is paralleled by a corresponding physiological status of the cerebral centres, so that all variations in the former imply parallel variations in the latter. The theory as given at the beginning of this paragraph simply states in psycho-physical terms what the theory of temperamental influence states in purely psychical terms.

This theory offers the best chances for a future psycho-physical explanation of sound modifications. The present state of knowledge does not, however, enable us to go beyond a general statement. Rousselot's "*hypothèse d'une sorte d'anémie, d'un affaiblissement graduel et transitoire des centres nerveux qui aboutissent aux muscles*" (proffered in the closing pages of his valuable experimental investigation of the patois of three generations belonging to the same family), is not yet, as

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its author himself notes, supported by experimental observations. For the cases of artificial interference with the normal activity of the nervous centres by means of drugs, for which we possess sufficient proof, do not directly bear on this question.

From these attempts at discovering the ultimate causes of phonetic change which, as was pointed out above, really lie outside the linguistic domain, we turn to a consideration of the immediate causes which may be assigned to definite phonetic modifications.

- 7 In his latest work (1900), Wundt has called attention to the possibility that social conventions¹ may have influenced the phonetic character of speech. In support of which he notes "that custom requires certain Indian tribes to articulate with open mouth, so that among the Iroquois the opposite form of articulation is considered improper." Hence, according to him, the absence of the labials, *p*, *p^h*, *b*, *b^h*, *m*, and *w*, in the Iroquois dialect. There is no inherent improbability in the general proposition. Convention may affect the form of utterance as well as its substance; witness, for instance, the low and subdued tone in speaking which is demanded by "good breeding." We should have here on the phonetic side a parallel to the effect which taboo may have had in lexicography. But the empirical basis for it seems at present still exceedingly weak.

Touching the absence of labials in the Iroquoian dialects, Mr. J. N. B. Hewitt of the Bureau of American Ethnology (Smithsonian Institution) informs me that it is not a matter depending upon a "rule of good usage," though it is a fact that they do not employ labials with the exception of the Cherokee "ama" = "water," and the Wyandot, which replaces the *w*-sound of the ancient

¹ *Völkerpsychologie, Die Sprache*, I (1900), p. 359 and 403.

forms by an *m*-sound. The same authority suggests that a passage in Father Brebeuf's Jesuit Relations (1636)¹ may have been the source for the statement made by Wundt: "Ils ne cognoissent point de *B, F, L, M, P, X, Z*, et iamais *I, E, V*, ne leur sont consonnes. . . . Toutes les lettres labiales leur manquent; c'est volontiers la cause qu'ils ont tous les lèures ouuertes de si mauvaise grace et qu'à peine les entend-on quand ils sifflent, ou qu'ils parlent bas." This remark is substantially repeated by Lafitau (1724), who, in his *Mœurs des Sauvages Américains*, says;² "Parmi ces termes, ceux qui sont chargés de Lettres Labiales, ne leur appartiennent certainement pas, parce que les Hurons et les Iroquois ne les ont point; ce qui leur donne une grande facilité de parler toujours la bouche ouverte et en tenant le Calumet entre les dents."

A remark of Sievers in his *Phonetik*³ shows how very difficult it is to make accurate observations along this line. In speaking of the various degrees in which the lips co-operate, by rounding and protrusion, in the formation of speech sounds and affect, for instance, the acoustic quality of vowels, he refers to the noticeable lack of labial articulation in (British) English, a peculiarity so pronounced that it has often been noted and classed as one of the chief characteristics of the (British) English basis of articulation. He then proceeds: "wie es denn in England eine *ausgesprochene Anstandsregel* ist die Lippen beim Sprechen möglichst wenig zu bewegen." This, however, appears to me altogether to overstate the matter and also to involve a partial misinterpretation. In the first place, the activity of the

¹ Chapter iv, p. 99, col. 1.

² II, p. 468-469.

³ *Grundzüge der Phonetik* ⁴ (1893), p. 17, § 46.

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lips in English is largely proportionate to the desire for and need of clear enunciation, much greater for that reason in elocutionists and on the stage than in colloquial discourse. From this fact it may be at once inferred that the immobility of the lips cannot be called an "Anstandsregel"; if it were so, the serious actor of all persons would be lost to offend decorum, or even to disfigure his face if energetic lip-movement were considered unaesthetic. All that can be said in explanation of the unquestionable fact of the (British) English weak labial articulation is that it is probably due to the same causes as the general tendency toward repose and avoidance of gestures or expressive movements by which the English are sharply distinguished, for instance, from the Italians. Further than that, it is hardly safe to go. And the question whether social convention produces this tendency toward repose, or whether a natural (physical) tendency toward repose is so universal as to appear in the likeness of a social convention, must remain open.

As, however, the investigation of the influence of distinctly social factors on speech has only just begun, material in support of Wundt's thesis may yet be found.

It may be noted that Beufey, in 1877, advanced a somewhat similar theory in emphasizing the importance of physiognomy on sound formation. "Changes in the features of the face imply certain modifications in the relative position of the vocal organs necessary for the production of a given sound." This is the reason why, in imitating another's speech, we are apt "to adopt the physiognomy of the person imitated, his gestures, his whole habitus." If, then, the adoption of a certain physiognomic trait becomes socially compulsory, a corresponding modification of certain sounds would be the necessary result.

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8 Under the name of "mechanical changes" may be grouped a number of modifications which must always and of necessity appear whenever the manner with which the mechanism of the speech-organs is operated is varied. A given series of configurations of the vocal organs may be considered here as a machine which is so adjusted as always to turn out a certain product, but variations in the manner in which this machine is run must be reflected in the finished product.

9 The first principle underlying such changes is, that any acceleration in the speed of a series of movements necessarily impairs the nicety of their co-ordination. Some cases of what is generally called combinatory sound change belong here, namely, all those in which sound alterations are due to an inexact co-ordination of the requisite movements when passing from one sound to the other. Such is the case, for instance, when two mutes follow each other, of which one is formed by a farther forward articulation than the other, *e. g.*, when the labial *p* is preceded by the dental (alveolar) *t*, or *t* by the guttural *k*. In order to insure full acoustic value to the *t* and *k* respectively, it is necessary that the closure for the next consonant (namely, of the lips for *p*, and of the tongue against the alveolar region for the *t*) should not be made until the previous consonant has been exploded. If, however, the articulations for the first and second consonant slightly overlap so that the closure for *p* or *t* is made before the preceding *t* or *k* has been exploded, the audibility of these sounds is impaired or even annihilated, for the sound waves are caught in the cul-de-sac which has been formed in front of them. In this manner the so-called "regressive assimilation" of **quid-pe* to *quippe*, *factum* to *fatto*, *octo* to *otto*, has probably taken place. It must not be

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forgotten that the two *t*'s in the printed Italian words do not represent phonetically two complete surd dental explosives. The two *t*'s are the orthographical symbol for a long *t*, that is, between the moment of closure and the moment of explosion a small pause intervenes. The change, then, is from *octo* to *oto*, i. e., a single long *t* has taken the place of the compound *-ct-*. This prolongation of the *t* is somewhat in the nature of a compensative lengthening, the reason for which will appear in a later paragraph. It cannot be doubted that syllabification plays here a prominent part. Its general importance for the facts of assimilation has been properly emphasized by Wechssler, whose proposed distinction between extra-syllabic and intra-syllabic assimilation is certainly of greater dynamic value than the usual division into "regressive" and "progressive" assimilation. The Latin syllabification *o-cto* appears to have resisted the loss of *c*, which took place when later the syllabic division fell between *c* and *t*, as it had fallen between *d* (*t*) and *p* in **quit-pe*.

The reverse combination in which a forward consonant precedes a back consonant may, in the case of overlapping articulations, lead to similar results. For, if the closure for the back consonant, e. g., *t*, is made before the forward consonant, e. g., *p*, has been exploded, communication with the lungs is stopped and the compression of air necessary for the explosion cannot take place. Such is the case in Siever's example, "hat kein," which becomes "hä kein," and here belong probably changes like Latin *pecco* for *pet-co*, French *sept* (= sēt) from Latin *septem*, *baptiser* (with "silent" *p*) from *baptizare*, *malade* from *male-aptum*, *mam'zelle* (colloquial) from *mademoiselle*.

In these cases again syllabic division is important.

Latin *pet-co* becomes *pecco*, but *a-ptus* remains, while later *mal(e)ap-tus* becomes *malade*. By no means all cases of assimilation are due to such mechanical changes. The term "assimilation," like many of our grammatical terms, covers a large mass of phonetic phenomena which have a homogeneous external appearance, but are of very different origin. Each individual case must be judged separately.

Where three consonants follow each other an increase of speed frequently results in the removal of one, because the necessary movements cannot be gone through in the short time allotted to their execution. For this reason "Hauptkunststück" becomes "Hauṽkunststück" (with long *p*; *ptk* changing to *pṽt*, as *ct* changed to *t̃* in *otto*), "wrist-band" in English becomes "riz-b'n(d)" (the *s* before the *b* becoming voiced), **pasc-tus* and *fortis* in Latin became *pastus* and *fortis*.

- 10 "Assimilations" like that of "octo" to "otto" and losses like that of *c* in Latin "pastus" are usually explained as due to economy of effort, because the resultant sound combination is considered easier. Paul,¹ for instance, says distinctly "that there is a large number of cases of which we may unhesitatingly say: this sound combination is more convenient ('*bequemer*') than that. For instance, Italian *otto*, *cattivo*, are without doubt more convenient for pronunciation than Latin *octo* [and *captivus*], Modern High German *empfangen* than an unassimilated **entfangen*." But this whole theory of "a tendency to make the work of utterance easier to the speaker, to put a more facile in the stead of a more difficult sound or combination of sounds" (Whitney, 1867),² or as Passy, after Sweet, prefers to call it, "the

¹ Principien,³ p. 53, § 38.

² Language and the Study of Language, p. 69.

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principle of economy," is based upon a wrong conception. "Convenient and inconvenient," Osthoff rightly remarked in 1877, "easy and difficult for pronunciation are very relative terms. To one man or nation certain sounds or combinations of sounds are very convenient and frequent . . . while another man or nation finds these same sounds and combinations exceedingly difficult." Similarly Sievers attacked the theory of economy of effort as far as isolated sounds are concerned: "In general it must be strictly maintained that—abstractly considered—differences in the difficulty of the pronunciation of speech sounds are exceedingly small, and that real difficulties are only experienced in the imitation of foreign sounds. For as every part of the human body by one-sided practice has become especially fitted for that service which it is daily called upon to fulfil, but is less apt or wholly unfit for other purposes, so also the human speech apparatus attains by constant practice absolute control over the sounds and sound groups of its native language."

What is said here of isolated sounds applies with equal force to the habitual co-ordination of those muscular movements which are necessary to produce a series of sounds; and it seems incredible that the sequence *-ct-* in *octo*, with all the muscular co-ordination it required, was less convenient to the Roman than is the *-tt-* of *otto* to the Italian, and that the change from the former to the latter was the result "*d'une économie dans l'activité des organes*" (Passy). If certain combinations were really irksome in themselves, why should they have been attempted at all; why should they often have been maintained so long? Moreover it is mere presumption in a foreigner to pretend to judge the ease or difficulty of pronunciation in a language not his own;

he might as well determine what is beautiful or humorous to a foreign people.

It is instructive to note how Wundt (1900), in his argument against the teleological assumption of a tendency toward ease ("Bequemlichkeit"),¹ coincides with what Leskien wrote more than a quarter of a century (1875) ago.² Both point out that this hypothesis demands that a distant period be set down as the age of "normal" pronunciation, while ever after the tendency toward economy of effort and ease produced linguistic decay; and such was really the view of earlier scholars, such as Schleicher and Curtius, the former of whom tried to support this theory of gradual decay by an underpinning borrowed from Hegel's philosophy of history.

The real causes which bring about those phonetic changes which are usually explained as being due to economy of effort are change of speed, which interferes with the proper co-ordination of movements, and avoidance of unusual combination, not because they are hard in themselves, but because they are unusual, our muscles being trained for a different and narrowly circumscribed set of movements. This latter point will be touched in another paragraph.

- 11 Increase of speed leads by no means always to simplification or loss of sounds. The opposite also occurs. So in passing from a median contact (as in *l*) of tongue and palate to a lateral contact (as in *s*) or *vice versa*, it is difficult, in rapid utterance, to avoid an intervening *t*, which is due to the audible severance of the first contact; "scarcely" thus becomes "scarcetly" in vulgar pronunciation; similarly **kēnstor* (Latin *cēnsor*) be-

¹ Völkerpsychologie, Die Sprache. I, p. 352-353; cf. also p. 15.

² Jenaer Lit. Zeit. (1875), p. 98.

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comes *keenzstur* (i. e., *kēnts-*) in Oscan, "warmth" becomes "warmph," Latin *sumsi* becomes *sumpsi*, Latin *ess're* becomes French *estre* (*être*), Greek **ἀνρός* becomes *ἀνδρός*.

In all these cases utterance is not made easier, but the inserted consonant is simply due to a failure to arrange the sequence of movements in the proper manner, and this, in turn, is caused by an increase of speed. Afterwards the form which the word necessarily assumed in rapid utterance may often be extended to its slow delivery.

Bremer has called attention to another interesting sound development which belongs here, namely, the addition of a *t* to a final *s*, as in German "Obs-t," "Ax-t," colloquial "Aas-t," "anders-t." The same causes which led to the "inserted" *t* after *s* in *ess're* > *estre* > *être* operate here also. The added *t* is the acoustic effect of an audible severance of the lateral contact of the tongue, while the expiratory current continues. This is apparently quite common in vulgar English, giving "nice-t," (superlative) "nice-t-est," "across-t," "fierce-t," "since-t," "clos-t" (for "close"), and "once-t." This last is probably neither a superlative to "once," as De Vere thought, nor an analogy formation after "whilst," "against," as Storm assumes, but a purely phonetic development out of "once" and bearing the same relation to it which "nice-t" does to "nice." Its form (the ending *-st*) has then resulted in a functional assimilation of the adverb "once-t" to the ordinal "first," and this gives Mr. Dunne's "William the Oncet." Quite parallel is the development of a final *k* in French dialectal "nĭk" for "nid," i. e., *ni*, "pěrdŭk" for "perdu." "Ce *k*," Roussetol correctly explains, "est purement organique, [=mechanical] amené par la brusque détente des organes

et n'a rien à voir avec les consonnes finales en roman." Similarly, in a certain pronunciation of accented "yea" (= yes), the short vowel is often followed by a *p*, because the current continues to escape while the lips are being closed. For those forms which occur both with and without syncope (as Latin *caldus* and *calidus*) Brugmann has rightly assumed variation of speed, calling the slower, not syncopated forms, *lento*-forms, the faster, syncopated ones, *allegro*-forms. Acceleration of speed will probably account satisfactorily for all cases of syncope, and the fact that this process of elimination takes place in unemphatic syllables, which are hurried over, agrees well with this assumption. In this respect syncope, being the result of rapid utterance, is the exact counterpart of a certain form of anaptyxis which results from retarded enunciation. Such retarding is frequently accompanied by the stressing of usually unstressed parts of a word which leads to an "unfolding." Monosyllabic "Élm" is thus turned into "Élôm," with a secondary accent on the group *lm*, which thus obtains, according to the phraseology of the Hindoo grammarians, a vowel share (*svarabhakti*), or becomes syllabic, *lôm*. Similarly Dwíght becomes Dèwíght. Both of these words occur in street names of New Haven, and the anaptyctical form is often heard when they are given slowly and with distinctness. (Another form of anaptyxis will be discussed below, § 18.) The term "syncope" is commonly applied to the loss of a vowel only. But there are cases where a whole syllable is lost, under essentially the same conditions under which vowels are syncopated (namely, in unstressed position), and which, therefore, might aptly be called syllabic syncope. This syllabic syncope, like vocalic syncope, is undoubtedly due to rapidity of utterance. It most frequently occurs when

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two successive syllables are either identical or similar, as in Μελ[av]άνθιος, nu[tri]trix; se[mi]modius, ἀμ[φι]-φορεύς. For these cases Bloomfield introduced the apt term "haplology."¹ Others speak here of syllabic "superimposition," which somewhat grossly describes the psychological process. The term "syllabic dissimilation" is entirely inappropriate, as the process has nothing to do with dissimilation. The reason why most cases of syllabic syncope occur when two successive syllables have at least their initial consonants in common is, first, that this common initial forms the bridge by which the second syllable may be anticipated, as

$$\begin{array}{c} \rightarrow S \rightarrow E \rightarrow M \quad i \\ \quad \quad \quad \parallel \searrow \\ \quad \quad \quad m \quad O \rightarrow D \rightarrow I \rightarrow U \rightarrow S \end{array}$$

$$\begin{array}{c} A \rightarrow M \rightarrow \Phi \quad \iota \\ \quad \quad \quad \parallel \searrow \\ \quad \quad \quad \phi \quad O \rightarrow P \rightarrow E \rightarrow T \rightarrow \Sigma, \end{array}$$

and second, that, owing to the similarity of the two syllables, the loss of one is not so readily noticed and corrected, insuring a survival to the curtailed form. But syllabic syncope is not confined to haplology. The vulgar modern High German has not only the haplology *superindent* for *superintendent*, but the further abbreviation to *superdent* (this was the really vulgar form in my dialect, *superindent* was common as approved colloquialism, *superintendent* was purely literary). Meringer and Mayer give the *lapsus linguae* "Katorie" for "Kategorie." Such cases are, of course, rarer because the absence of common initials decreases the temptation to

¹ Bloomfield, *Journal Am. Oriental Soc.*, XVI, p. xxxiv; Wackernagel, *Altind. Gramm.*, I, p. 278, § 241; Brugmann, *Grundriss*, I², part 2, p. 857, § 983; Meringer und Mayer, *Versprechen und Verlesen*, p. 180.

switch the innervation from one syllable to the other and the loss is more easily detected. Still, Adolf Wilbrandt,¹ presumably reproducing an actually observed idiosyncrasy of pronunciation, makes a character of one of his novels indulge in syllabic syncope, such as "Photophie" (= Photographie), "Genation" (= Generation), "Delikessen" (= Delikatessen), "Aokrat" (= Aristokrat), "Plejer" (= Plebejer). For the Prākṛit Pischel² cites *atthamaṇa* for *astamāyana* with loss of *ya*, *aḍa* for *avaṭa* and *kalera* for *kalevara* (*kalebara*) with loss of *va*. Such losses must be viewed much in the same light as the apocope of initial syllables, *e. g.*, 'Vársity (University), *bácky*³ (tobacco), or the Praenestine *conia* for *eiconia*, and differ only in degree, not in quality, from the syncope of single unstressed vowels.

- 12 Increased speed of utterance is also the immediate reason why words which are often used undergo phonetic changes which do not affect words which are more rarely used and, therefore, more slowly pronounced. By a dangerous metaphor which Friedrich Schlegel (1808) introduced into linguistic science,⁴ these changes of much used words have been compared with the gradual wearing off of the lettering on a coin through frequent handling. A brief reflection shows that there can be no serious comparison between the loss of the metallic substance of a coin which passes through many hands, and any changes which may arise through the frequent repetition of a series of movements. In fact, as Wechssler⁵ points out, this frequency ought to insure greater

¹ Die gute Lorelei, in Deutsche Rundschau, LXXXIII (1895), p. 332-

35. Brugmann, Sitz. B. d. K. sächs. G. d. W. (1901), p. 31.

² Grammatik d. Prākṛit Sprachen, § 149, p. 113.

³ Cf. Storm, Engl. Philologie,² Index sub Apokope and Aphaerese.

⁴ Über Sprache und Weisheit d. Indier, p. 15.

⁵ Forschungen z. Roman. Philol. Festgabe f. Suchier, p. 482, end of note.

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practice and, hence, precision. The immediate cause for change is acceleration of utterance, which changes, *e. g.*, vocalic *i* to consonantal *j* in "familiar," "famili^jar" (as Vietor rightly notes), or "Tuesday" (= t^jūz-) to "Chooseday" (čūz-).

- 13 Nor is it to be understood that language distinguishes in these cases between valuable and valueless syllables or sounds, and tends to divest itself of the latter, "to get," as Whitney (1867) once put it, "rid altogether of what is unnecessary in the words we use."¹ As we saw above, there is no such tendency in language. Such a theory rests upon a false interpretation of the facts. The cause for a loss is never to be found in the "uselessness" of the sound eliminated. The immediate cause is always something else, *e. g.*, increase of speed. The influence of such a force is, however, limited by the requirements of intelligibility, and since we measure the importance of sounds, or syllables, or words by the standard of intelligibility, it is plain that unimportant elements (*i. e.*, elements which do not vitally affect intelligibility) succumb, while important elements resist. A weak lung does not contract tuberculosis from being weak, but from definite infection. But its weakness is contributory, because it diminishes its power of resistance.² As we have at present no sufficiently large

¹ Language and the Study of Language, p. 70.

² Curtius (in 1870) strongly urged that the phonetic development of a sound was affected by its signification, "that sounds and syllables which are felt to contain the chief significance oppose disintegration longer than others," so that, *e. g.*, in Greek, intervocalic *ι*, which was usually dropped, was left undisturbed in optative forms like *δοίην, λέγοιεν*, through a desire to save the mode sign *ι*. This theory of intentional preservation of significant sounds was successfully attacked by Delbrück "on general grounds": "It seems to me that we are not justified in assuming that the Hindoos and Greeks had a perception which we have ceased to possess of the significance of the individual sound in

collection of experimental observations regarding variations of speed in normal speech and their acoustic effects, this subject awaits further investigation.

- 14 Even less do we know of those variations in speed which may have taken place in the historical development of language within the same community. It is very unfortunate that we possess no information concerning the length of time consumed by a Greek tragedy or a forensic speech from which the rate of delivery could at least approximately be fixed. There is no inherent improbability in the assumption that in many languages the rate of speed increased as time went on. But the attempt which Wundt has recently made to explain Grimms' law of the permutation (shifting) of mutes by assuming that the changes there involved are due to an increase of the speed of utterance is open to

speech forms; for they as well as we had only complete words which were transmitted from generation to generation;" [This statement must, however, be somewhat modified. In English, for instance, the ending *-or* has usually a weak stress (as *emperor, orator*), but where the ending becomes important a secondary accent falls on it, as *lessor* (contrasted with *lessee*), similarly the French ending *-é* appears in English in a weak (*e. g., attorney, treaty*) and a strong (*e. g., lessee, legatee*) form. The difference in vowels is the immediate result of a difference of accent, but this difference of accent is due to semantic causes.] "and that primeval period in which, according to Bopp's hypothesis, the Indo-European forms were compounded by the composition of significant elements lay for them no less than for us in the twilight of the past whence no enlightening ray could reach them. Thus in my opinion the preservation of the *ι* in the optative may be more correctly regarded as due to the influence of analogy. It seems in fact the most natural assumption that *δοίην* retained its *αι* because it formed part of the series *δοίμεν, δοίτε*." That is, functional association and association by sound may act as a stay to phonetic transformation, not because the sounds so retained are felt to be charged with a given meaning, but because the associative group of which they form a member cannot be broken. Against the theory that there can be no analogical preservation, but only analogical restitution, see the note to p. 264.

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the gravest doubts. We have here a series of important changes which affect surd, sonant, and aspirated mutes (*e. g.*, *k*, *g*, *kh*, *gh*) without apparent influence of neighboring sounds, except in so far as the accent, according to Verner's discovery, determines whether the pre-germanic medial tenues *h*, *t*, *p*, and *s* are to change into surd *χ*, *p*, *f*, *s* or into the corresponding sonants, *z*, *d*, *ḡ*, *z*; the former change takes place immediately after the chief accent, the latter in other positions. There being no historical evidence for an increase of speed among the Germanic tribes, Wundt must rely on such internal evidence as the linguistic facts may yield. He, therefore, supports the allegation that rapidity of utterance tends to convert sonant mutes into surds by a reference to changes resulting from a rapid pronunciation of the syllables *sba*, *sda*, *sga*, "which, when rapidly articulated, involuntarily become *spa*, *sta*, *ska*." But he forgets that these cases have no standing here because they are combinatory sound changes, *i. e.*, induced by neighboring sounds. Nor are his other examples for the same change better chosen, because in them *b*, *d*, *g* occur as finals of the syllables *ab*, *ad*, *ag*, a position in which the modern German habitually changes all voiced sounds into surds. For the German this fact is well recognized,¹ but it seems that quite generally "les consonnes finales accusent une tendance à s'assourdir" (Rousselot),² for the diagrams of Rousselot show that if they do not lose their voice altogether, they often reduce it and become at least partially surd. There is no experimental material available to prove that languages which

¹ Sievers' *Grundzüge d. Phonetik*,⁴ p. 265 f., § 744; Vietor, *Elemente d. Phonetik*,³ p. 304, § 154: "Im Auslaute sind ausser den Liquiden *l*, *m*, *n*, *r*, nur stimmlose gestattet; daher z. B. *t* in *Land*, trotz *d* in *Landes*."

² Rousselot, *Les Modifications*, p. 44.

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possess clearly defined voiced mutes, such as the English or French, tend to transform these into surds when the speed of utterance is increased. The result of a few tests I made were negative.

- 15 It would appear more likely that another cause might be immediately responsible for this change, namely, an increase in the force of the expired current. Just as modifications of the speed of utterance bring about certain necessary mechanical changes in the phonetic form of words, so also variations of the strength of the expiratory current produce certain mechanical consequences.

An examination of the conditions which are necessary for the production of voiced mutes will readily show that there is a limit to the force with which they may be uttered.

For the production of voice the vocal chords must approach each other so closely that only a moderate amount of breath may escape through the glottal opening. An increase beyond a certain degree of strength requires a wider opening of the glottis, which, in turn, makes it impossible for the vocal chords to act so as to produce voice. This observation, in which both Vietor and Sievers¹ agree, can be tested experimentally by abnormally increasing the force of the current while trying to pronounce a sonant mute. A very emphatic "Gad!" may be heard on the stage with its initial mute as surd, exactly as Vietor heard the initial and final *d* of an emphatic "dead!" as surds. There is, therefore, better phonetic support for assuming that a change from sonant mutes to surds, such as is regularly found in the

¹ Vietor, *Elemente der Phonetik*,³ p. 278, § 141, Anm. 1; Sievers, *Grundzüge der Phonetik*,⁴ p. 266, § 745. — Storm's exception (*Englische Philologie*,² p. 110) does not seem to be well taken.

Germanic and the Armenian, may have been the result of an increase of energy of expiration rather than of greater speed of utterance. This same theory would likewise explain the transition of Pregermanic *tenuēs* into *tenuēs aspiratae*, for "emphatic aspiration" is a well-known phonetic phenomenon;¹ and the necessary distinction between the original sonants (now turned surd) and the original surds would be maintained by the aspiration of the latter. An exactly parallel case for this is furnished by the modern South German dialects, in which the unvoiced *mediae* *b̥*, *d̥*, *g̥* (for original voiced *b*, *d*, *g*, which are wholly absent from these dialects) are kept distinct from the corresponding surds, not only because they are weaker (*lenes*), but also because the stronger surds (*fortes*) are aspirated, *e. g.*, *kʰint* (Kind), *gʰib* (gieb). The further development of this parasitic aspiration into the spirants corresponding to the previous mute (*e. g.*, *pʰ* to *pf*) demands strong expiration. And this appears to have been the intermediate stage by which finally the simple spirants *f*, *þ*, *χ* were reached,² a process described by Sievers in § 729. This final change is the only one for which rapidity of utterance might theoretically be urged as cause, but experimental material for this assumption remains to be gathered. The whole problem of the Germanic shifting of mutes cannot receive adequate solution until a series of similar phenomena in living dialects has been carefully analyzed and explained. Its complexity warrants the belief that different forces were operative in producing it, and that each individual change demands a separate explanation.

Whether there is any connection between geographical

¹ Viator, *Elemente d. Phonetik*,³ p. 227, § 104, Anm. 2 and 3.

² Brugmann, *Grundriss*, I (2d ed.), part II, p. 695, § 791, Anm.

environment and the strength of the expiration cannot be determined until experiments in this direction have been made. The "deeper" gutturals of mountaineers as compared with corresponding sounds of the inhabitants of the plains, as the \tilde{c} ($\tilde{h}\hat{a}$) of the Syriac of Kurdistan for w ($\tilde{h}eth$), have often been explained as due to more emphatic expiration;¹ and Vietor,² hesitatingly, makes use of the same principle to account for the conversion of voiced into voiceless mutes in Wales and Scotland.

- 16 The differences in the development of sounds according to their position in stressed or unstressed, strongly stressed or weakly stressed syllables is due to rapidity of utterance, the force of the emitted current and the muscular energy with which the vocal organs are manipulated. This latter is always directly proportional to the strength of the current.³ Not only a vowel, but also a consonant or a group of consonants undergo variations which depend upon the nature of the stress accent which their syllable happens to have. As far as vowel changes are concerned, changes due to unstressed position are now universally kept apart as a class by themselves. The cases of consonantal changes depending upon accent are not so frequent. The Old English feminine demonstrative $s\tilde{e}o$, "that one," in enclitic position became $s\tilde{i}\tilde{o}$ (through $se\tilde{o}$), thence sho , which being blended with the strong form, $s\tilde{e}o$, yielded a contaminated $sh\tilde{e}o$, regularly reflected in Modern English "she." The initial sh of "she" is therefore due to its atonic enclitic position, the change from $s\tilde{i}$ to sh being parallel to that of $t\tilde{i}$ to \tilde{r} (e. g., $n\tilde{e}t\tilde{i}ur$ [nature] > $n\tilde{e}c\tilde{u}r$,

¹ Nöldeke, *Nensyrische Grammatik*, § 26.

² Vietor, *Elemente d. Phonetik*,³ p. 279, § 141, Anm. 3 (end).

³ Lenz, *Kuhn's Zt.*, XXIX, p. 51: "Das Grundgesetz aller Lautbildung, das Gleichgewicht von Expirationsdruck und Hemmung."

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etc.). In a similar manner Wackernagel¹ explained the variation in the initial sounds of Greek *τοῖ* and *σοῖ*, the latter being the reflex of an original orthotone *τυοῖ*, the former of the corresponding enclitic *τοῖ* which had lost its *υ* in this position, a loss paralleled by English "fórrards," "báckards" (fórwards, báckwärts), "hock-ered" (awkward), "Cógswél" (Cógswell).

Where stressed and unstressed forms run parallel, it sometimes happens that the stressed form is discarded and only the unstressed form retained. In these cases modifications which arose through lack of stress become secondarily stressed, as the *u* in Latin *clúdo* for *au* (*claudio*) from *óc-cludo*, where it occurs in unstressed syllable. The peculiar retention of the *ah*-sound in *are*, *rather*, *father* (where *ē* would be expected, as in "name," "take," and actually occurs as vulgar pronunciation, "air," "rayther," "fayther") is similarly explained by Hempl² as a generalization of the unstressed form of these words.

- 17 Scherer, in his *Zur Geschichte der deutschen Sprache* (1868), seems to have been the first to suggest a connection between pitch accent and vowel color.³ After Reyher, in 1679, had made the first attempt at determining the various proper tones of the German vowels, or rather the proper tones of the oral cavity acting as a resonator in the production of vowel sound ("Observavi," he says in his *Mathesis Mosaica*, "vocales non tantum figura oris et linguae sed etiam ratione toni differre, si suppressa voce et quasi halitu solo pronuncii-

¹ Kuhn's *Zt.*, XXIV, p. 592. — Bechtel, *Hauptprobleme*, p. 355, suggests a similar explanation for *καί*, but its connection with the stem *κα-* is not certain.

² *Amer. Journ. Phil.*, XXI, p. 438.

³ P. 121-6.

entur, ita autem ut ab uno vel plurimis maxime vicinis exaudiri queant”), a large number of similar experiments, conveniently tabulated by Vietor,¹ though differing in detail, have established the fact that vowels are characterized by certain definite resonances, and that *u*, *ā*, *i* form an ascending musical series. In 1829 Willis, to whom we owe a very valuable treatise on the acoustic nature of vowels, in support of his claim that these resonances are absolute for any given vowel, and do not depend upon the chord tone, called attention to the incompatibility of the vowel *i* (in “see”) with a very low chord tone, and of the vowel *u* (in “too”) with a very high chord tone, a remark which can easily be tested by trying to sing *i* on a very low, or *u* on a very high staff.

Upon the basis of these observations Scherer ventured to suggest, with some hesitancy, that “the pitch of the musical accent which falls upon a given syllable attracts the vowel with a corresponding proper tone,” so that a very high-pitched syllable would demand an *i*, a very low-pitched syllable a *u*. And where pitch and stress run parallel, the unstressed and at the same time low-pitched syllables would exhibit a tendency to change their vowels to *o* or *u*.

Couples like Greek *πατέρες* and *εὐπάτορες*, *πατήρ* and *εὐπάτωρ*, *φρένες* and *ἄφρονες*, *φρήν* and *ἄφρων*, *ψεῦδές* and *ψεῦδος*, seem to lend some color to the theory that the qualitative variation of *e* and *o* is dependent upon the accent, *e* belonging to the higher pitched, *o* to the lower pitched syllable.² The chief

¹ *Elemente d. Phonetik*,³ p. 28.

² The literature on this question is given by Wackernagel, *Altindische Grammatik*, I (1896), p. 75, § 68; and Hirt, *Der Indogermanische Akzent* (1895), p. 16.

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weakness of this hypothesis lies in the fact that the alleged influence of pitch on vowel color is so far only a theoretical construction which has no support in any phonetic observations. The parallelism of high tone and *e*, low tone and *o*, may be purely accidental, or if there be a causal relation between them, what hinders us to assume that the vowel *e* attracted the high pitch? Not until we find in a living, pitch-accenting language like the Chinese such a dependence of vowel quality on pitch can this theory be regarded as anything more than a guess. In Chinese, however, as far as I know, no vowel changes seem to be induced by pitch variation.

While it is impossible to divide phonetic changes into two strictly separate classes, namely, those of purely physical and those of purely psychical nature (for physical and psychical elements are almost always blended), yet the changes discussed in the preceding paragraphs are immediately due to essentially physical or mechanical causes, inasmuch as they are the necessary results of certain combinations of articulations or of a certain manner in which the speech organs are operated. Back of these immediate causes lie more remote psychological ones. In contradistinction from these the changes discussed in the following paragraphs are more or less independent of the physiological structure of vocal organs, and as they are all the consequences of definite mental phenomena, they may be grouped together as psychological changes.

- 18 First among this class are those changes in which a habitual sound combination has taken the place of an unfamiliar one. Where words borrowed from a foreign language are concerned, such substitutions are frequent. But coming under the head of "changes in transmission," they do not belong here. Here the question is

whether within the same language and in the native speaker the same degree of practice is acquired for all sound combinations alike.

Now practice is the disposition to perform a task more perfectly after having once performed it. We "gain practice" when we acquire such tendency, we "are practised" when we possess it. All practice, therefore, depends on the frequency with which a task has been performed. It increases, first slowly, then more rapidly, then slowly again, until it has reached its highest point, after which an increase of practice becomes impossible. In the same manner in which practice was gained it fades, unless kept alive by repetition. It is, therefore, clear that practice in the co-ordination of the movements necessary for the pronunciation of a sound group depends upon the frequency with which the speaker is called upon to perform this series of movements; in other words, upon the frequency with which certain sound combinations occur in his active vocabulary.

There are a number of statistical investigations concerning the relative frequency of single sounds in different languages, notably those of Förstemann for the German, Greek, Latin, and Sanskrit, and of Whitney for the English and Sanskrit.¹ But similar tables for sound combinations are not available, although Förste-

¹ E. Förstemann, *Neues Jahrbuch der Berlinischen deutschen Gesellschaft* (Germania, herausgegeben v. F. G. v. der Hagen), VII (1846), p. 83 ff. (for German); Kuhn's *Zeitschrift*, I (1852), p. 163 (for Greek, Latin, German); II (1853), p. 35 (for Greek, Latin, German, and Sanskrit); Whitney, *Oriental and Linguistic Studies* (II series), p. 272 (for English); JAOS. X (1880), p. cl. (= Proceedings at New York, October, 1877, for Sanskrit; repeated in his *Sanskrit Grammar*). — Other references in Kaeding's *Häufigkeitwörterbuch der deutschen Sprache* (1897), p. 37, 669; Pott, *Etymol. Forsch.* (2d ed.), II, part I (1861), p. 37.

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mann and Pott early directed attention to their importance.¹ Almost the only exception is the table which Bourdon offers in the eleventh chapter of his *L'expression des émotions et des tendances dans le langage* (1892) for Modern French. The weakness of this lies in the comparatively small number of words counted. The *Häufigkeitswörterbuch der deutschen Sprache*, festgestellt durch einen Arbeitsausschuss der deutschen Stenographiesysteme, herausgegeben v. F. W. Kaeding (1898) is based upon the enormous mass of twenty million syllables or about eleven million words, but being principally intended for stenographic reforms, it is not very conveniently arranged for philological purposes. Its results are also misleading, because it tabulates letters, not sounds.

In view of this want of data, which ought to be speedily supplied, only theoretical surmises are possible. Assuming, then, that there exists a decided difference in the frequency of sound combinations and consequently also in the practice acquired for the co-ordination of the movements necessary for them, we might reasonably expect three things to happen.

In the first place a group of sounds representing an unfamiliar sequence of movements may be broken up by the interposition of a vowel sound. Some cases of anaptyxis undoubtedly belong here, such as Heracleian *ἑβδεμήκοντα*, Attic *ἑβδομος*, with the intercalary vowels *ε* and *ο* respectively to break up the unfamiliar **ἑβδομο*-.

Syllabic division is here again of great importance. In the Oscan (excepting the dialect of Capua), for instance, von Planta² is undoubtedly right in connect-

¹ Förstemann *Kuhn's Zeitsch.*, II (1853), p. 44; and Pott, *Etymol. Forsch.* (2d ed.), II, part I (1861), p. 61.

² *Grammatik d. osk. umbr. Dialekte*, I (1892), p. 260, § 135, note 1.

ing the difference in treatment of mute + liquid or nasal after long and after short vowels with differences in the syllabic division; so that *maa-treís*, *luv-freís* are without anaptyctical vowel, because *tr* and *fr* begin the syllable (just as there is no anaptyxis when these and similar combinations begin a word, *e. g.*, *trístaamentud*, *Frentreí*), while in *pat-ereí sak-araklám* the original *t-r* and *k-r*, belonging to different syllables, are separated by an intercalary vowel.

Not all cases of anaptyxis, however, belong here. Some may be due to slow pronunciation or emphasis, as Dickens' ¹ "elongated and emphasized" "sap-pur-IZE" and "sapparised" (= surprise(d)). Such forms may then be generalized and given literary standing through their suitableness for certain metres, as the Shakespearean ² "Henery" ("I am the son of Henry the Fifth"), "sentry" ("A sentry send forth"); these are exact parallels to the Vedic use of svarabhakti-forms, like the trisyllabic *índra* (= *indara*), and the tetrasyllabic *darçatá* (*daraçatá*). See above, p. 207.

In the second place, if the order of two sounds should be unusual it may be reversed, provided that by so doing a familiar sequence is obtained. For in practising any movement the order in which the elements follow each other plays a most prominent part, and just as we are unable to recite a familiar verse backward without practising the reversed order, so also two sounds may be perfectly familiar in one direction while they are unusual when this order is reversed. This process, then, would result in one kind of metathesis. The Sanskrit *ātman*, in Prākṛit first changed to *ātma*, then to **ātva*, and then to **ātpa*; but for the unusual com-

¹ Our Mutual Friend, I, p. 75; Pickwick Pap., II, p. 130.

² Cf. Storm, Engl. Philol., ² II, p. 961.

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bination *-tp-* the frequent sequence *-pt-* was substituted, and the word occurs in the form *āpta* in the Prākṛit dialect of the Gīrnār inscriptions.¹ A similar transposition seems not improbable for Latin *vespa*, for the cognate words point to an original **vepsa* with a sequence *-ps-*, which is unusual for the Latin.²

Finally a third possibility might be imagined. If certain sound combinations are very frequent then it may be supposed that the path of innervation is smoother, as it were, along these usual combinations, and that, therefore, other things being equal, there may be a predisposition to follow a given sound by a strictly limited number of other sounds. If, for instance, there are very many cases in a language in which the combination *ml* occurs, and very few in which *m* is followed by *n*, it would seem likely that the habitual sequence of movements might be substituted for the unusual one. In the absence of native examples this case might be instanced by the conversion, in vulgar English, of "chimney" and "omnibus" to "chim(b)ley" and "om(b)libus." Here the organs of speech not practised in performing the foreign sequence *mn* probably substituted for it a more familiar sequence, namely, *ml* (*mb̄l*).

It must be left to future investigations to determine how far this elimination of rare sequences goes in individual languages. It is highly probable that only where a very usual and a very unusual combination enter into competition this process of substitution will take place. But as every language is continually changing its phonetic stock and thereby gives rise to new sound collocations, it is very likely that some of these involving unusual collocations will undergo additional changes in

¹ Pischel, *Grammatik der Prakritsprachen*, p. 192, § 277.

² Brugmann, *Grundriss*, I (2d ed.), part II, p. 868, § 992.

order to bring them within the range of habitual groups of sounds and movements.

- 19 Another class of psychological changes is of the same character as the analogical changes discussed at some length in a previous paragraph. Like these they are the result of associative interference. With this difference, however, that in the former changes one word, phrase, or form interfered with another word, phrase, or form, while in the changes here intended two elements of the same word interfere with each other. Psychologically considered, the change from *ὀκτώ* to *ὀπτῶ* in the Elia dialect, due to the associative interference of *ἐπτά*, rests on the same basis as the change of the original **pīnque* (cf. *πέντε*, etc.) in Latin to *quinque*, which is due to the associative interference of the initial consonant of the second syllable of the same word. According to current grammatical nomenclature, most cases of intraverbal interference are called assimilations. This term, however, does not comprise all the phenomena which are the result of intraverbal interference, such as epenthesis, metathesis, and *umlaut*. On the other hand, it includes cases which are only externally similar. Some cases, for instance, of the "assimilation" of two adjacent consonants do not belong here, because they are mostly the result of an inadequate co-ordination of a series of movements (§ 9).

Experimental material for this class is found in Meringer and Mayer's collection of *lapsus linguae*, which is accompanied by a very adequate explanation of the facts assembled. A similar collection of *lapsus calami* would be interesting, as illustrating associative interference in a different class of movements. In order that one element of a word may be able to exercise any influence over another element of the same word, it is

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necessary that both should be simultaneously present in consciousness. In his psychological investigation of the phenomena of assimilation and attraction (1860), Steinthal¹ provided for this simultaneous presence in consciousness by the introduction of "schwingende Vorstellungen," meaning thereby elements of consciousness which, though within consciousness, are not in the focus² of consciousness.

When a long chain or series of elements enters consciousness, he reasons, the narrowness of the latter prevents all members from entering the focus of consciousness at the same time. Only a few members at a time can do so; of the rest we remain unaware. But these extra-focal elements do not for that reason cease to play an important part. The stimulation of the focal members spreads over the extra-focal ones with which they are connected. The original impetus may proceed from a single focal member, nevertheless the whole chain is thrown into sympathetic vibrations. "And this sympathetic vibration will be strongest both in those members which are most closely united with the focal member and in those which have only recently passed through the focus of consciousness." The first philologist to note this phenomenon was Theodor Jacobi³ (1843), who explained the phenomenon of *umlaut* as due to a psychological anticipation of the vowel of the suffix. Later (1874) Boehtlingk⁴ wrote

¹ Zt. f. Völkerps. und Sprachwiss., I, p. 110.

² In the following paraphrase I translate Steinthal's "unbewusst" by "extra-focal," and "bewusst" by "focal," in order to avoid speaking of "unconscious elements of consciousness."

³ Beiträge z. deut. Grammatik (1843), p. 125, quoted by Scherer, Zur Gesch. d. deut. Sprache (1868), p. 25 and 143.

⁴ Jenaer Lit. Zeit. (1874), p. 767, quoted by Sievers, Grundzüge d. Phonetik,⁴ p. 252.

in more general terms: "An Indo-European word is truly a unit in this respect that the speaker, when he utters the first syllable, has, as it were, already mentally pronounced the whole word."

During the utterance of any word the memories of the movements necessary to produce the single sounds of which it is composed pass successively through the focus of consciousness. But the memories which have passed through this focus faintly abide in consciousness for some time, until they have entirely faded from it; and the memories of the movements necessary for subsequent sounds faintly rise before they enter into the focus. The memory of the sound that is being uttered, memories of sounds just uttered, and memories of sounds which will presently be uttered, are simultaneously present in consciousness, though in varying degrees of strength.¹ If now at any time an element of this undercurrent of sound memories fails to retain its subordinate position, and either enters the focus of consciousness before it should, or re-enters it after once leaving it, an interference with the normal form of the word results. This interference may manifest itself in a variety of ways. In the first place a sound may improperly reappear² at a wrong place of the word without disturbing the other sounds of which the word is composed, as in Meringer and Mayer's "Blennorrhoea netonatorum" for "neonatorum," "paster noster" for "pater." Latin *crocodrillus* for *crocodillus*, Italian *teatro* for *teatro*, illustrate this transpositive repetition. Again a sound

¹ Cf. Stern, "Psychische Praesenzzeit" in *Zt. f. Psych. und Physiol. d. Sinnesorg.*, XIV (1897), p. 334, 336.

² On transpositive repetition of sounds cf. (aside from Brugmann's and Meyer-Lübke's compendia) Wackernagel, Kuhn's *Zt.*, XXXIII, p. 9; Schulze, *ibid.*, p. 391; Wackernagel, *Altind. Gramm.*, § 239 (where literature).

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may improperly appear at a wrong place of the word and be omitted in its proper place. The appearance of a sound before its proper time may be called proleptic transposition, while the opposite phenomenon may be termed metaleptic transposition. Illustrations are Meringer and Mayer's "paufassen" for "aufpassen," "Wabretz" for "Wrabetz"; Italian *treato* for *teatro*, Heracleian *τράφος* for *τάφος*.

In both of these classes there is no interference of one sound with another which characterizes the following cases. The result of such conflict may be (1) the complete destruction of one sound and the substitution for it of a sound which precedes or follows, as in Meringer and Mayer's "Lokuskapital" for "Lotuskapital," or in the Sanskrit "assimilation" of the sibilants in *ḡṛāṣura* for *svāṣura*. (2) Instead of the annihilation of one of the two competing sounds we may have both preserved, the result being a metathesis in which two complete sounds exchange places. Meringer and Mayer cite "hestirisch" for "histerisch (hysterisch)," "Henela" for "Helena." Cases like *ἀμιθρέω* for *ἀριθμέω*, *σκέπτομαι* for **σπέκτομαι* (Latin *spectare*), belong here. (3) It is an interesting question whether a single quality of a sound may be anticipated. Meringer and Mayer claim this for a number of cases in which the quantity of one vowel seems to be affected by that of a following one. Some of the cases quoted by them can be regarded as complete sound substitutions, *e. g.*, the lapsus "zürrechtgëlëgt" may have obtained the long *ē* of its second syllable by simple anticipation of the long *ē* of the fourth. Other cases are more to the point, such as "Hundsgrötte von Neāpel" with its lengthened *ō* of "grötte." It is to be noted, however, that no cases are given in which a vowel exercised such influence over

another vowel of the same word, and it might be well further to examine how prominent a part stress accent and verse ictus played in this lengthening. In the verse, "O wie still ist hier zu fühlen," quoted by Meringer and Mayer, both word accent and verse ictus fall on the *i* of "still" and may have lengthened the vowel. What goes under the name of "quantitative metathesis" in Greek hardly belongs here. This "metathesis" is confined to adjacent vowels, and the quantitative increase of the second vowel is probably compensative in its nature, going parallel with a quantitative reduction of the first.¹

The anticipation of the quality of a consonant which Meringer and Mayer assume for the lapsus, "Diese Muse ist in Pier getauft" (the surd mute *t* of "getauft" changing the sonant *B* of "Bier" into surd *P*), seems likewise to have no parallel in language. The Prākritic *dhakai* for **thagai* quoted by Wackernagel² is too uncertain and differently explained by Pischel.³

The only phenomenon which might be classed here is the effect which the color of the vowel of the next syllable is sometimes found to exert upon the color of the previous vowels. The term "umlaut" is often used for this. Two typical cases are the Old High German *gesti* for *gasti*, and the Avestan *vohu* for **vahu* (Sanskrit *vasu*). In both cases the position of the speech organs necessary for the pronunciation of the second vowel has been partly anticipated during the ut-

¹ Brugmann, Griech. Gramm. (3d ed. in I. v. Müller's Handbuch), p. 58, § 41 (end: "Die quantitative Reduktion des Vokales der ersten Silbe ging Hand in Hand mit Quantitätszuwachs des Vokals der zweiten"); also Grundriss, I (2d ed.), part II, p. 799, § 929.

² Altind. Gramm., p. 277, § 239 c, note.

³ Grammatik d. Prākritsprachen, p. 158, § 221, and p. 213, § 309 (end).

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terance of the first vowel. For *i* the tongue must assume a high front position; when this is partly anticipated as a mid-front position during the first syllable of *gasti*, the *a* is — topographically speaking — raised to *e*. On the other hand *u* requires a high back position of the tongue and rounding of the lips. If this is partly anticipated by raising of the tongue to a mid-back position and rounding of the lips, the vowel of the first syllable must appear as *o*. Whenever a consonant separates the two vowels the current view, first proposed by Scherer (1868),¹ is that this partial assimilation implies two steps. "In the first place the specific articulation of the vowel affects the articulation of the intervening consonant, and not until then does it affect the vowel of the neighboring syllable." Stated in such general terms, this view is not tenable. It is true that an *i* in the second syllable may thus influence, *e. g.*, a preceding *k*, by palatalizing it (*i. e.*, drawing the place of articulation of the *k* forward); but in the majority of cases such an influence of a following vowel on a preceding consonant is phonetically impossible. What effect could an *i* have on a preceding *p* or *b*? And yet we have Old High German plural *lambir* to *lamb*. Or how can an *r* be palatalized? And yet we have *heri* (parallel to Gothic *harjis*).

Again, in the Avestan examples, how can the back elevation of the tongue have been anticipated in the *š* of *mošu* (parallel to Sanskrit *makšu*). In short, the phenomenon of "umlaut" is in general a direct assimilation

¹ Z. Gesch. d. deut. Sprache, p. 143. Cf. Brugmann, Grundriss, I (2d ed.), part II, § 961, p. 834. — The general statement in Sievers' Grundzüge der Phonetik,⁴ p. 257, § 714, is considerably modified by the remarks in the next paragraph (§ 715). But what proof is there to show that in changing Old Norse *handum* to *hondum* only the lip rounding was anticipated while the tongue position was maintained?

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of the vowel of a preceding syllable to that of the next. Contrary to Scherer's view, it *does* rest upon a "psychological anticipation." Any change which the intervening consonant may undergo is purely secondary and accidental. The case of Avestan ¹ *yešti* (for **yašti*) is different, because here the *a* is attacked, as it were, from both sides, being preceded by a high front spirant and followed in the next syllable by a high front vowel.

The simultaneous presence in consciousness of two elements of the same word is, however, only the condition without which no interference can take place. It is not an adequate explanation of such interference. For many times two elements of the same word may be simultaneously present without any sign of associative interference, exactly as many associations of two words, by sound or by meaning, do not lead to any analogy formation. As in this latter case, so here we must ask for the special forces which tend to break down the barriers between the two simultaneously present elements of a word by producing an unusually close association. One of these factors, noted by Meringer and Mayer, is the functional equivalence of the sounds concerned; that is, those sounds which occupy corresponding places tend to influence one another; so not only vowels influence other vowels, consonants other consonants, but also accented vowels other accented vowels, a consonant beginning a syllable another consonant in the same position. This functional equivalence of the affected and affecting sounds is naturally prominent in Meringer and Mayer's examples, because in the great majority of their cases the two sounds belong to different words; they are lapses of the tongue within a phrase rather than within a word. In the latter case functional equivalence is of

¹ Brugmann, *Grundriss*, I (2d ed.), part I, p. 160, § 176, 4.

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very limited application. In fact it is by no means necessary for many cases of associative interference. In the determining influence which the vowel of the accented syllable sometimes exercises over the unstressed neighboring vowels¹ in the Indo-European languages (as Latin "volumus" but "legimus," "monumentum" but "alimentum") we have a faint trace of that dominating position of the chief syllable which in the Ural-Altaic languages has become an important grammatical means by which the affixes are more closely united to the stem. For in these languages the "law of vowel harmony" demands that the color of the vowel of the suffix should correspond to that of the stem.²

But of considerably greater importance is probably the nature of the surrounding sounds. Sounds are attracted toward each other in direct proportion to the frequency with which their combination occurs in language. In *treatro* the initial *tr* represents a frequent combination, the tongue passes easily from *t* to *r*, hence the psychically anticipated *tr* of the last syllable gains utterance. In *netonatorum* it is not only the fact that *t* stands at the beginning of a syllable which draws it forward, but the neighborhood of the *o*. As in "treatro" we have a repetition of the group *tr*, so in "netonatorum" we have a repetition of the group *to*. Transposition, then, often takes place when the sound combination produced by it is frequent and the co-ordination of movements therefor familiar, so that the weak presence in consciousness of a preceding or following group may easily turn the innervation into the accustomed path.

¹ Brugmann, *Grundriss*, I (2d ed.), part II, p. 835, § 962; Schuchardt, *Gröber's Zt.*, IV, 121; Wechsler, *Forschungen z. roman. Philol. Festg. f. Suchier*, p. 491.

² "Umlaut" is an assimilation in the opposite direction.

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By frequency of a sound group we need not always mean absolute frequency of the group in general. A particular sound group may be especially appropriate at a given place. Greek *σπέκτομαι changed to σκέπτομαι, not because πτ was absolutely more frequent than σπ, but because in this particular position the analogy of βλάπτω, κρύπτω, τύπτω and many others was decisive.¹

Finally, the similarity of the movements necessary for two sounds produces a close mental union of the two and frequently leads to interference. The difficulty of distinguishing in rapid action between closely similar movements of any kind tends toward assimilation. Such sounds are the varieties of sibilants, hence Sanskrit "sṛaṣura" became "ṣṛaṣura." The material collected by Meringer and Mayer deserves to be scrutinized with a view of finding those factors which really determined the occurrence of a given definite lapsus; "Lokus-kapitäl" owes the wrong *k* of its second syllable to the fact that the sequence *L-o-k-u-s* represents a well-known vocable; the same is true for "Nasslass" (for "Nachlass"; "nass" = wet), "paster noster" (for "pater noster"; "paster" = "Pastor," "minister"); in "Mulk-kuh" (for "Melkkuh") the sequence *u-l-k* is a vocable (= jest), etc.

The direction in which the assimilation takes place is, on the whole, of small importance as far as the psychology of the associative process is concerned. The only difference is that in the case of progressive associations the vocal organs have just executed the movements of the sound which is repeated in a subsequent syllable, while in regressive assimilations this physiological ele-

¹ The other derivation of σκέπτομαι from *σπέκτομαι (Latin *specio*) which first became *σκεπτομαι, then σκέπτομαι (Brugmann's Griech. Gramm.,³ p. 296, § 344, note 2) seems therefore less plausible.

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ment is wanting. The factors which determine the direction are by no means clear, though the frequency of the resulting combination is undoubtedly one of them.

- 20 Apparently the opposite of the assimilations discussed in the preceding paragraph are the dissimilations of which Grammont¹ has made a careful study, without, however, entering upon the psychological questions. Under the name of dissimilation are grouped the results of two distinct processes. On the one hand a sound which occurs repeatedly in successive syllables may be lost, as Greek ἑκπαγλος for *ἑκπλαγλος, or Sanskrit *kumbhas* for **khum̐bhas* (for the aspirata *kh* is as much a compound sound as *πλ*). On the other hand one of the repeated sounds may be changed into another sound, as Italian "Bologna" for "Bononia," vulgar French "carcul" for "calcul." The Greek *φλαῦλος shows both developments, namely, φαῦλος and φλαῦρος.

It is at once apparent that the "dissimilatory loss" of a repeated consonant is in no way similar to the syncope (haplogy) of one of two similar syllables (p. 207). In the latter case the initial consonants of two successive syllables being alike, the second is anticipated, destroying the dissimilar part of the first. Nothing of this kind happens in the cases of "dissimilatory loss." In some cases which are placed here it may be held that the particular grouping of the consonants produces the change;² for instance, the unusual group *ρτρ* changes to *τρ*, and thus *δέρτρων* becomes *δέτρων*. There seems to be no difference between changes like **κάτκτανε*³ to

¹ La dissimilation consonantique dans les langues indo-européennes et dans les langues Romanes (1895).

² Here, as elsewhere, most of the examples are taken from Brugmann's *Grundriss*.

³ Brugmann, *Griech. Gramm.*,³ p. 131, § 121.

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κάκτανε (Homeric), * ἀνμνάσειεν to ἀμνάσειεν (Pindaric), * κέκαμμαι to κέκαμμαι, ἐσθλός to ἔσλος (Lesbian), and so-called "dissimilatory changes" like * εἰσκω (**φε*εἰσκω) to εἰσκω, * βλάσφημος to βλάσφημος, δέρτρων to δέτρων (Hesychian). The nature of the sounds constituting these groups plays, of course, an important part; but it does so in all of them, and μμμ as unusual group is on the same level with κσκ. Cases like ἔκπαγλος for * ἔκπλαγλος, however, are different. A common group πλ is here changed to simple π, and the direct influence of the λ of the following syllable is patent. A similar dissimilatory loss, only in the opposite direction, is δρύφακτος for δρύφρακτος. These cases are by no means clear. Meringer and Mayer suggest that an explanation might be found in Stricker's theory of separate cerebral centres for each individual sound, which must be successively stimulated. This view, Stricker argued, seems to be contradicted by the fact that a series of syllables containing the same sound may simultaneously be present in consciousness. How could, in the passage "Roland der Riese," two syllables containing *R* be simultaneously present, if there is only one centre for *R*? He solves the difficulty by claiming that at the moment when *Ro-* is in the focus of consciousness, it is not "Riese" which rises over the threshold of consciousness, but "iese." That is, the *R*-centre can be stimulated only once at a time. Upon this basis Meringer and Mayer explain the dissimilatory loss of *ρ* in δρύφακτος. While δρυ- is in the focus of consciousness, φρακτος begins to rise into consciousness, but its image lacks the *ρ* which is pre-empted by δρυ. This *ρ*-less image (-φακτος) is, then, actually pronounced. But why are these dissimilations confined to a few definite sounds (like *r*, *l*)? Would the dissimilatory loss not

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necessarily be confined to cases like $\delta\rho\acute{\upsilon}\phi(\rho)\alpha\kappa\tau\omicron\varsigma$, while it also occurs in backward direction, as in $\epsilon\kappa\pi(\lambda)\alpha\gamma\lambda\omicron\varsigma$? Above all things, is Stricker's observation correct? With all due regard to the trustworthiness of this scholar (to whom we are indebted for the first investigations of the psychical processes in speaking, or what is now called "internal speech") confirmation of his assertion must be awaited.

And the same obscurity prevails with regard to the causes of dissimilatory substitution of similar sounds, such as l for r , or n for l .

A solution may perhaps be looked for in experiments with some simple sequence of movements (of the hands or fingers) and the dissimilatory phenomena which may appear in it when performed under various conditions of speed, etc. It may also be that an investigation of writing may yield some useful data. I have noticed that in my own writing I frequently vary between two forms of a letter as between the two forms of e , namely, ϵ (like Greek epsilon) and e , as in "frequently."

- 21 A psychological explanation of the various forms of compensative lengthening was given by March¹ (1894) in a short note on "Time and Space in Word-Concepts": "It takes a certain time to utter a word. Remembrance of the word, the word-concept, includes time as one of its elements. This time element is one of the most persistent of the elements . . . and, in the history of languages, words are found to retain their length thru the most varied changes of the quality of sounds. A consonant may be dropt, and the preceding vowel lengthend. . . . A vowel dropt and preceding vowel lengthend. A vowel dropt and consonant lengthend. . . . A consonant dropt and another con-

¹ Proceed. Amer. Phil. Assoc. (1894), p. liii.

sonant lengthend." His remark concerning the definite time-concept associated with every word is borne out by the observation that in reading the fact that a word has been mutilated is often discovered before the exact nature of the mutilation is understood; another proof that we receive words, both acoustically and visually, not as a succession of so many independent sounds or letters, but in their totality.

22 In contrast with the foregoing changes which take place within the same individual are those modifications which are the result of the transmission of speech from one individual to another. Such transmission may be either to an individual who does not yet possess a language of his own (as a child), or to an individual who possesses a language of his own upon which he superimposes a foreign one. Again, modifications in the transmission of speech may be either acoustic and visual, *i. e.*, due to the manner in which the second individual receives the new sounds, or they may arise during reproduction, *i. e.*, when the second individual tries to reproduce the new sounds which he has heard.

23 Those who are familiar with a language often do not appreciate how much or how little they really hear of the sounds which, combined into words, strike their ears. As in reading, so in hearing we do not spell, but receive words and even phrases as a whole. For this reason we often hear and read what we expect to hear and read, supplying from memory any defects (see p. 97). In reading, for instance, the upper half of a line may be covered without serious interference. Connected discourse may be uttered with considerable speed and carelessness without becoming in the least unintelligible. A series of disconnected words (as in dictation) requires greater care of pronunciation and slower tempo.

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A new combination of sounds (as an unfamiliar proper name) will still more easily be misunderstood unless the sounds are carefully uttered. Now in transmitting speech to the child there are no previous memories with which the words might be associated and acoustic defects be remedied, and the powerful restraint of orthographical memories is wholly wanting. Acoustic defects are therefore received and reproduced. Most of them betray themselves at once to the parents and are carefully corrected, but some are of so subtle a nature that they may escape. The two combinations written *-cl-* and *-tl-*,¹ for instance, though produced by different articulations, produce nearly the same acoustic effect, and the substitution of one articulation for the other may easily go unnoticed. The articulation *glauben* (for *glauben*, "believe"), which Sievers claims for Saxony, is my own. The reverse is Mrs. Gamp's *mankle* (mantle) and *Barklemy's* (Bartlemy's, *i. e.*, Bartholomew's). Latin *pia-clu-m* and *scelis* belong here.

Similar confusions may arise between the uvular *r* and velar *ch*,² (as in German "ach"), as between "Waaren" ("wares") and "Wagen" ("wagon" with *g* = *ch*); between *th* and *f*,³ as in "nuffin" (nothing), "fill-horse" for thill-horse, etc. Kruszewski⁴ notes a Russian palatal *t* before *i* for palatal *k*, *dirá* for *girá* ("weight"). If, then, in certain cases an entirely new set of articulations may be substituted by the child for that of its parents without perceptibly altering the acoustic effect of the

¹ Storm, *Engl. Philol.*,² II, p. 825; Viëtor, *Elemente d. Phonetik*,³ p. 234, § 107, notes 2 and 6; Schmidt-Wartenberg, *Mod. Lang. Notes*, III (1888), p. 126, 192. — For the Latin, cf. Stolz in Stolz-Schmalz' *Latein. Gramm.*³ (I. v. Müller's *Handbuch*), § 48, p. 69 (where literature).

² Viëtor, *Elemente d. Phonetik*,³ p. 165, § 76, note 2.

³ Storm, *Engl. Philol.*,² II, p. 825.

⁴ Techmer's *Internat. Zt.* III, p. 148.

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sound, it is possible that these new articulations in the course of time may pursue a line of independent development which will produce variations in the sound of the second generation, which in the mouth and with the articulation of the parents it could never have undergone.

How far failure to perceive the sound correctly influences speech is yet to be investigated. In all phonetic work the physiological aspect of production is so strongly emphasized that the acoustic aspect of reception is almost lost sight of, which, after all, is the controlling factor in the acquisition of speech and in the formation of those habits of muscular articulation which are comprised under the name of "basis of articulation."

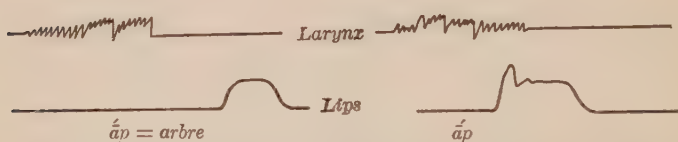
In this connection attention must be drawn to the observations of Tarver and Miss Wiltse.¹ Tarver found in his experiments on school children an inability to distinguish certain shades of sound, as in the case of a boy who was not deaf, yet could hear no difference between "very," "perry," and "polly," and he was informed by teachers that they not uncommonly met with children slow to learn to read, because sounds different to their teachers are not different to them. Whether we may speak here with Chrisman of a psychical "sound-deafness" similar to aphasic "word-deafness" is a matter to be determined by further investigations.

We have seen above (§ 9) that under certain conditions certain movements intended to produce sound are inaudible, usually because two articulations overlap

¹ J. C. Tarver, *London Journal of Education* (new series), vol. IX (1887), p. 475; S. E. Wiltse, *Americ. Journal of Psychology*, vol. I (1887-8), p. 702. Both are reported by Chrisman, *The Pedagogical Seminary*, II (1892), 426.

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and impair the acoustic value of the combination. Rousselot's *Note sur les sons disparaissants*¹ illustrates the point well. His tracing shows that a sound may be physiologically alive while acoustically dead ("les lettres vivent encore alors que nous les croyons mortes, et leurs derniers moments nous échappent comme leurs premiers"). In comparing the tracings for $\acute{a}p$ (= "arbre," in the dialect of La Chaussée, Meuse) and for the ordinary compound $\acute{a} + p$, it is seen that in the latter the closure of the lips for p follows immediately upon the vibratory curve which indicates the laryngeal tone of the \acute{a} ; but in $\acute{a}p$ (= *arbre*) there is a short interval between the \acute{a} (traced by its laryngeal vibrations) and the p -closure,



This brief intervening space, which remains without acoustic effect, undoubtedly represents the imperfect muscular movement for the "silent" r . Similar physiological movements without sound may be observed in the colloquial abbreviations "n' Morgen," "y' do" (for "Guten Morgen," "how do you do"), where the muscles begin their work with the t of *'tn Morgen*, and the d of *d' y' do*, but the word does not begin acoustically till the n or y is reached.² Since language is acquired by the child through the ear, such silent movements

¹ *Modifications*, p. 143.

² I notice the same phenomenon in the abbreviated phrases "[Have] y' found him?" or "[Have y'] found him?" where the bracketed part consists of rudimentary movements without sound.

will be omitted. The same is true of faint sounds, as the Southern English *h*, which is weak and hardly different from the usual "breathed" beginning of an initial vowel. The difference between this Southern English *h* and the American or Irish *h* is so pronounced that it does not take a phonetician to note it. A careful observer like Mr. Bernard Shaw, in a note appended to the last one of his *Three Plays for Puritans*,¹ which, on account of the cockney dialect of one of its characters, is of considerable linguistic interest, remarks: "In America, representations of English speech dwell too derisively on the dropped or interpolated *h*. American writers have apparently not noticed the fact that the South English *h* is not the same as the never-dropped Irish and American *h*, and that to ridicule an Englishman for dropping it is as absurd as to ridicule the whole French and Italian nation for doing the same. The American *h*, helped out by a general agreement to pronounce *wh* as *hw*, is tempestuously audible, and cannot be dropped without being immediately missed. The London *h* is so comparatively quiet at all times, and so completely inaudible in *wh*, that it probably fell out of use simply by *escaping the ears of children learning to speak*. However that may be, it is kept alive only by the literate classes who are reminded constantly of its existence by seeing it on paper."

- 24 In preliterate times the acoustic channel is the only one through which speech is conveyed from one generation to another. Afterwards, when part of the linguistic stock is transmitted in writing, the visual factor becomes important, and the relation of sound to letter, of orthoëpy to orthography, a necessary auxiliary for all phonetic investigation and of great methodological

¹ P. 314. Cf. Vietor's *Elemente d. Phonetik*,⁸ p. 21, § 30.

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value. How far the inscriptions of Cicero's or of Augustus' time represent the actual pronunciation, to what degree they maintained a conventional spelling which was no longer phonetic, are questions of the utmost importance. A reaction against the older method which dealt with letters instead of sounds is apt to lead to another extreme; it regards all ancient documents as phonetically written, dates sound changes according to the time when they appear in writing, and is inclined to endow orthographical variations with phonetic significance.

That in our own book-ridden education the spelling-book has considerable influence on pronunciation is easily seen by a perusal of the cases lately collected by E. Koeppel.¹ The *th* of *author* comes from this source, as do the pronunciation (current hereabout) "Nor-wich" (for Norrich) and "Green-wich" (for Grīnidge).

So much for the reception of speech by children. In the case of the aural acquisition of a foreign idiom it must be further noted that the ear of each individual is trained for the speech sounds of his native language, and that it is a very imperfect instrument in correctly perceiving foreign sounds. The following passage of von den Steinen's account of his sojourn among the Indians of Central Brazil records a typical fact:² "Their perception of the Portuguese was even more defective than they themselves suspected. They (*i. e.*, the Bakairi Indians) do not possess an *f* and use *p* instead. When I said *fogo* ('fire'), *fumo* ('tobacco'), they said *pogo*, *pumo*. But they really heard or, more correctly,

¹ Spelling-Pronunciations. Quellen u. Forsch. z. Sprach- u. Cultur-gesch. (1901) Heft 89. Cf. also Sweet, New English Grammar, I (1892), p. 270, § 831.

² Unter den Naturvölkern Zentral-Brasiliens (1894), p. 80.

perceived the *f* as *p*, and, as far as I could make out, they were firmly convinced that they repeated the same sound as I pronounced it for them. For they behaved very differently when I gave them a word of too many syllables; then they toiled and struggled and finally despaired; but *fogo, fumo, f . . .* — the more distinctly and loudly I pronounced it, the more distinctly and loudly they repeated their *pogo, pumo, p . . .*, becoming noticeably put out at my failure to be satisfied.” As each member of a speech community has his well-defined set of articulations (basis of articulation), so he also possesses a clearly circumscribed basis of aural perception. He does not, without special and careful training, hear the foreign sounds as they are, but he hears them through the medium of the acoustic memories of his native sounds. This is simply another illustration of the well-known fact that our senses are trained for a limited number of purposes and that our ears are no more free to perceive *any* sound than our muscles are free to perform *any* movement. The difficulty in learning a foreign language is as much an acoustic as a physiological one. Because of a failure to perceive the sounds correctly, the name of the German poet Schiller appears as Giller in the minutes of the Assemblée Nationale, as Gilleers in the *Moniteur* of Aug. 26, 1792, and as Gille in the *Bulletin des Lois*.¹ Such “acoustic” substitutions must be assumed wherever sound-substitution is not the result of the absence of certain sounds in the alphabet of a language. In the Negro English of Surinam, for instance, initial *r* often changes to *l*, but intervocalic or post-consonantal *l* appears as *r*. The chance for such mishearing of

¹ Hunziger, in *Verhandl. d. Versamml. deut. Philol., etc., zu Zürich* (1887), p. 306. Cf. Egli, *ibid.*, p. 101.

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sounds is the greater, as the foreign sounds are not learned singly but in words, and with each foreign word a native word is easily associated, a process which further tends to blunt the sound perception. One of the female characters in Turgenieff's *Spring Floods*¹ "discovered in the Russian language a wonderful resemblance to Italian. *Mynovanie* ('moment') sounded like *o vieni, so mnoi* ('with me') like *siam noi*." A German grocer of my acquaintance pronounces, and undoubtedly hears, the English "wholesale" as "Holzöl."²

The influence of spelling upon foreigners depends upon the conditions under which they acquire the foreign language. Where it is mainly by eye these cases are innumerable and, remaining uncorrected, become habitual. In fact the danger of allowing spelling to interfere with pronunciation is the reason why a phonetic transcription has been strongly urged for beginners.

- 25 In the reproduction of speech sounds while they are being acquired children differ in the rapidity with which they attain perfection. By perfection must here be understood the facility to produce sounds — by whatever means — which shall be considered by the adult members of the community as acoustically equivalent to those which they themselves use. This leaves two possibilities of change in the reproduction of sounds by children. In the first place they may use a different articulation in order to reproduce the sound heard. This they *may* do, as was pointed out above, on account of a wrong aural perception of the sound. They may likewise do so in the reproduction of a sound rightly perceived. For if it is true that like configurations of the speech organs produce like sounds, it is conversely true

¹ End of chapter v.

² Pronounced Hólsöl, not Hóltsöl.

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that the same sound may sometimes be produced by different articulations, provided only that defects in one quarter should be compensated for in another. By means of radiographs it may become possible to collect a sufficient material of actual compensations to obtain an idea to what extent they take part in the transmutation of speech when it passes from one generation to another. So far the most extended observations are those of Grandgent and Sheldon.¹

It has been suggested that in certain cases the child is forced so to resort to compensatory articulation in order to repeat a sound which he perceives correctly. The speech apparatus of the child is of much smaller dimensions than that of the adult. Wherever, therefore, a definite resonance is required, it would seem that the infant must adjust its oral cavity differently from the adult, for the child must in some way make compensation for the smallness of his resonance chamber, and he can do so by changing the angle of the jaw, the position of the tongue, or the configuration of his lips. Such compensation was first alluded to by Helmholtz,² who was led to it by his theory of a fixed characteristic pitch for the vowels. These fixed pitches depending on the resonance of the oral cavity he found in general the same for men, women, and children. "Whatever the oral cavity of women or children lacks in size may easily be compensated for by narrowing the orifice so that the pitch may be made as low as that of the largest oral cavity in man." That the "may" in

¹ *Mod. Lang. Notes*, III (1888), p. 358. Cf. also Vietor, *Elemente d. Phonetik*,³ p. 36, § 36, note 1.

² Helmholtz, *Lehre v. den Tonempfindungen*, p. 171. For the controversy on this passage see Vietor, *Phonet. Stud.*, II, 62; Lloyd, *Zt. f. franz. Sprache u. Litteratur*, XV, 2d part, p. 205; Pipping, *ibid.*, XV, 2d part, p. 165, and *Acta Societatis Fennicae*, XX (1885), No. 11, p. 6.

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this passage equals "must," and that the particular compensation by narrowing of the orifice is meant as illustration seems clear to me, in spite of Lloyd's objections. Much greater weight must be attached to Lloyd's other objection to such enforced compensation. "The vocal organs of a man are, roughly speaking, about twice as large in each lineal dimension as those of an infant. It is quite permissible to postulate a particular case where this ratio would hold good exactly. In such a case the resonances of the cavities would always differ exactly by an octave. . . . Therefore the infant's vowel resonances would need to be reduced in every case by a severe contraction of the labial orifice. [Here Pipping rightly objects that compensation may be brought about in other ways also.] . . . This reducing process would require the infant's orifice to be made sixty-four times smaller in area than is the man's orifice for any given vowel." This question, again, will hardly be settled by inferences, but by direct observation, when radiographs of the exact articulations in man and child are available.

Bremer and Pipping¹ have both seen how important the theory of compensation is for the development of language. "On the one hand," says Pipping, "it will happen that the compensative articulations by which the child may obtain the low resonance pitch of adults may be so inconvenient that faithful imitation of the vowel sound is sacrificed to convenience; it is even probable that certain not insignificant changes in sound are unavoidable. On the other hand the child, when it faithfully reproduces the vowels of adults, is forced to resort

¹ Bremer, *Deutsche Phonetik*, Preface, p. xvi; Pipping, *Zt. f. franz. Spr. u. Litt.*, XV, 2d part, p. 165, and *Acta Societatis Fennicae*, XX (1885), No. 11, p. 10.

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to other means of articulation. The speech of the child must [as far as vowels are concerned; it *may* in other cases] differ from that of adults either acoustically or physiologically, or in both ways together. Many of these differences will disappear as years go by, but some are sure to remain." In other words, in some cases, when trying to imitate a definite sound, the child, on account of the size of his organs, may be forced to acquire a habit of articulation differing from that of his parents, in other cases it may do so without necessity. In these respects the basis of articulation which the child is building up will differ from that of his parents. The oftener the movements for these sounds are repeated the more firmly fixed they become. If he carries these infantile articulations intended for his small speech apparatus into his adult pronunciation with its larger organs, the effect must be that these sounds will then become acoustically different from those which his parents used.

The following diagram may illustrate how the sound S changes to S_1 in passing from one generation to another:—

Adult, with large
speech organs, by an
articulation A pro-
duces a sound S



Child, with small speech
organs, correctly per-
ceives the sound S , and
reproduces it by compen-
satory articulation A_1 .

→ Child, becoming adult,
retains this changed
articulation A_1 in
spite of enlarging
organs, and ulti-
mately thus pro-
duces a sound S_1 .

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If these considerations are borne out by future investigations we have here cases of a gradual transition of sounds; gradual because depending on the slow growth of the organs of speech. This gradual change, due to the modification of articulation, takes place in the transmission of speech from one generation to another, and it takes place here only. Paul assumes a variability of articulation in the adult. According to him, even after the acquisition of a definite "basis of articulation," there remains a margin within which the pronunciation of the same word in the same position may vary. A certain uncertainty continues. The motory sensations, or, as I have called them, the diatheses, are in a constant flux, because slightly different articulations continually interfere with them. Every new movement changes them. For the assumption of such variability of pronunciation I can find no experimental support. On the contrary theoretical considerations concerning the formation of the basis of articulation and the observations of Roussetot and Bourdon go to show that the articulations in the adult do not change but are permanent (see above, p. 104). Nor is it true that any chance modification will seriously disturb a diathesis formed by long practice simply because it is more recent than the former impressions. And, finally, Paul is forced to assume that all the deviations are in one direction. For he himself admits that otherwise they will counteract each other. And so this variability of pronunciation does not, after all, furnish an explanation for speech changes, but we must look further for a cause which produces those constant deviations from the normal habit of articulations. In fact this variation of articulation is not the *cause* of any changes, but the necessary *effect* which other causes produce. It has always appeared strange

to me that Paul, who was the first to introduce the idea of "motory sensations" ("Bewegungsgefühl") into linguistic literature, devotes so large a space of his chapter on sound change to an attempt to derive modifications of sound from the variability of these motory sensations, which are, in reality, the conservative principle in speech, and has so little elaborated the acoustic side of the problem, while yet declaring "that the chief cause for sound changes lies in the transfer of sounds from one individual to another."

- 26 The case of reproduction of sounds of a new language by the adult foreigner is parallel to his aural reception of these sounds. As his ear was trained for a certain number of sounds, and as he associates foreign sounds with familiar ones, and hears them as such, so also his speech organs are trained in a definite series of movements, in which they have become thoroughly set, new movements are associated with these old ones, and the old movements prevail. This is so much the more easily done, as the corrective influence of the ear is wanting. It is an open question whether the ear is not more responsible for a foreign "accent" or "brogue" than the speech-organs. My observation is that those who most imperfectly pronounce a foreign language are usually not at all aware of their imperfections, and that those with a good ear are apt imitators. Here, too, the acoustic factor is probably of greater importance than is usually assumed, and the substitution of French *z* for English surd *th*, of German *ö* for the *u* in English "but," rests upon an acoustic rather than a physiological basis. Where changes are physiological they do not so much concern single sounds as the general manner of moving and using our organs of speech, and they affect, therefore, the whole phonetic alphabet and the combination

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of sounds into words. In this are included stress, pitch, and tempo, three very characteristic factors for every dialect. It is these common characteristics of the sound system of a given language which Sievers¹ called "basis of operation" and which are now commonly referred to as "basis of articulation" or "organic basis" (Sweet).² Where the contrast is marked, as in the English and French bases, the most characteristic points of each are easily noted. In English the tongue is flat and relaxed, its position low, and it is retracted from the teeth; this results in wide vowels, produces weakening of the unstressed ones, and has a tendency to lower the first members of diphthongs (as *lādy* for "lady" [*lēdy*]). In French the tongue movement is energetic, forward, and its dorsum raised, the result being narrow vowels, and conservation of vowels in unstressed syllables (although it must be noted that the French stress is much weaker than the Teutonic). Again, the lips in English remain quiescent, in French they are very active, hence modified vowels are wanting in the former. Supposing, then, that a dialectal group gives up its own vernacular and adopts a foreign language (either wholly alien, or more or less related to its own), certain changes are bound to take place which are due partly to acoustic, partly to physiological causes; for, on the one hand, sounds will be wrongly perceived, on the other hand they will be modified in reproduction, because the native basis of articulation is transferred to the foreign idiom. Speech mixture, therefore, may become a very important factor in changing a language, not only phonetically, of

¹ Sievers' *Grundzüge d. Phonetik* (2d ed., 1885), p. 83.

² Bibliography of descriptions of different bases of articulation in Storm, *Engl. Philol.*,² I, p. 84. Cf. also Viëtor, *Elemente d. Phonetik*,³ p. 262, § 127 ff.

course, but also in affecting its vocabulary, and even its structure. This is so patent a fact that the differentiation of a parent language into various more or less unlike languages was very early explained as due, to a certain extent at least, to speech mixture.

- 27 In his third Anniversary Discourse, delivered on Feb. 2, 1786, Sir William Jones¹ said: "It is much to be lamented, that neither the *Greeks* who attended ALEXANDER into *India*, nor those who were long connected with it under the *Bactrian* Princes, have left us any means of knowing with accuracy, what vernacular languages they found on their arrival in this Empire. The *Mohammedans*, we know, heard the people of proper *Hindustan*, or *India* on a limited scale, speaking a *Bhāshā*, or living tongue, of a very singular construction, the purest dialect of which was current in the districts round *Agrā* and chiefly on the poetical ground of *Mat'hurā*; and this is commonly called the idiom of *Tarāja*. Five words in six, perhaps, of this language are derived from the *Sanscrit*, in which books of religion and science are composed, and which appears to have been formed by an exquisite grammatical arrangement, as the name itself implies, from some unpolished idiom; but the basis of the *Hindustānī*, particularly the inflections and regimen of verbs, differed as widely from both those tongues, as *Arabick* differs from *Persian*, or *German* from *Greek*. Now the general effect of conquest is to leave the current language of the conquered people unchanged, or very little altered in its groundwork, but to blend with it a considerable number of exotic names both for things and for actions; as it has happened in every country, that I can recollect, where the conquerors have not preserved their own tongue unmixed with that

¹ Asiatick Researches (1788), I, p. 421.

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of the natives, like the *Turks* in *Greece*, and the *Saxons* in *Britain*; and this analogy might induce us to believe that the pure *Hindi*, whether of *Tartarian* or *Chaldean* origin, was primeval in Upper *India*, into which the *Sanscrit* was introduced by conquerors from other kingdoms in some very remote age; for we cannot doubt that the language of the *Vêda's* was used in the great extent of country which has before been delineated, as long as the religion of *Brahmâ* has prevailed in it." Friedrich Schlegel devotes the sixth chapter¹ of his *Über die Sprache und Weisheit der Indier* (1808) to a discussion of the same topic. If the Indo-European languages were once a single idiom, whence, he asks, come the great differences which now separate them? These differences are too great to be the result of geographical or psychological causes only. "It is necessary to add another factor to explain such differences fully; something which can partly be proved by grammatical investigations, and partly can be made plausible by a study of historical events. All these derived languages, just as the nations which speak them, have undergone a mixture with foreign elements, which differed in the different cases. And this necessarily tended to differentiate them even more (than the other causes). I do not simply refer to such admixtures as of Arabic in Persian, and of French in English, where the adopted words, because they do not adapt themselves to the grammatical form of the other language, immediately betray their foreign origin . . .; but I refer to admixtures which are much older and have formally assimilated themselves." And Humboldt²

¹ P. 71.

² *Über das vergleichende Sprachstudium* (Abhandl. d. Kgl. Akad. d. Wiss. zu Berlin, 1820-21, published 1822) = *Ges. Werke*, III (1843), p. 244, § 6).

(1821): "The mixture of several dialects is one of the most important factors in the genesis of languages. Sometimes the resultant language receives new elements of greater or smaller importance from the others which are fused with it; at other times a highly developed language will degenerate and deteriorate, accepting but little of the foreign material, but interrupting the normal progress of its development by using its more refined forms after foreign models, and thus defacing them." Finally Scherer¹ (1868) brought more distinctly forward the phonetic side when in his careful discussion of the reasons for phonetic changes he wrote: "What influence, on the phonetic side also, may we not assume to have taken place whenever a nation, or part of a nation, endeavored to appropriate the treasures of a foreign civilization! Not that I can give here concrete instances of such an influence; it is simply my intention to suggest possible directions for future investigations." Ascoli, who, in 1854, had alluded in general terms to language mixture² as one of the causes for linguistic change, was the first³ to give definite and concrete examples, such as the change of Latin *u* to *ü* in Celtic mouths, and the change of Latin *f* to *h* on Iberian soil. There are three different tests by which, according to Ascoli, such an "ethnological sound change" may be established. (1) In the first place the phonetic change must occur within the boundary lines which history assigns to a particular ethnic group. For instance, the change from *u* to *ü* takes place where, according to historical evidence, the

¹ *Z. Gesch. d. deutsch. Sprache*, p. 35.

² *Studj orientali e linguist.*, I, p. 21.

³ *Rivista di Filologia e d' Istruzione classica*, X (1881) = *Sprachwissenschaft. Briefe* (1887), p. 17.

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Romans came into contact with the Gauls, and not also elsewhere. (2) In the second place the *u* has undergone this change to *ü* not only in words borrowed by the Gauls from the Latin, but also in words introduced from other languages, such as the German. (3) Finally, the Celtic itself shows in the development of its own sound system a change from older *u* to *i*, the former sound being the Gaelic parallel to Britannie *i*. A number of similar observations have since been made of which Wechssler gives a convenient summary.¹ The possibility of "ethnological change" is thus completely established. Since Ascoli's time it has twice been resorted to in order to explain the differentiation of the Indo-European idioms, namely, by Penka² and by Hirt.³ But neither has, for obvious reasons, been able to advance beyond generalities. The problem as it stands is indeed much less a linguistic than an ethnological one. When, with Ascoli, we regard the modification of *u* to *ü* as an "ethnological change," we base this assumption (1) on a knowledge of the Gallic language, (2) on independent historical data concerning the territory inhabited by the Gauls, and (3) on independent information concerning the manner in which Gaul was Romanized. How much do we know of the languages which the Pre-Indo-European nations spoke? Nothing, or next to nothing. If, for instance, we had a sufficient knowledge of Ligurian, we might claim certain changes to be due to Ligurian influence, because, like the Gallic change from *u* to *i*, they are peculiar to that dialect.

¹ *Forschungen z. roman. Philol. Festgabe f. Suchier* (1900), p. 444. Cf. also Kretschmer, *Einleitung in die Geschichte d. Griech. Sprache* (1896), p. 120.

² *Origines Ariacae*, p. 149 ff.

³ *Indogerm. Forsch.*, IV (1894), p. 36, and Hettner's *Geographische Zt.*, I, 653.

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As it is, the problem cannot be attacked in this way from the linguistic side. It is upon the two ethnological points, then, that the whole question hinges. Our knowledge of the prehistoric ethnology of Europe has been conveniently summarized and critically reviewed by Kretschmer in the second chapter of his *Einleitung in die Geschichte der Griechischen Sprache* (1896).¹ It is as yet of so uncertain a nature that Kretschmer "rejects *a limine* all attempts to make use of it for the explanation of similarities or differences of the Indo-European idioms." The second point has received very adequate treatment at the hands of Hempl² and Ratzel,³ the former of whom, for the first time, made a careful analysis of the economical and political side of race mixture and its bearing upon speech differentiation; while the latter discussed general problems of expansion and colonization, in short, the mechanism of migration. No alien language will survive if its speakers are in a small minority. Gumbrowicz, in his *Rassenkampf*,⁴ observed that even the speech of the conquerors dies out under such conditions; Hempl and Ratzel agree with him. Those who hold that comparatively small bodies of Indo-Europeans subjugated an indigenous European population cannot, as Hempl rightly points out, maintain at the same time the theory of "ethnological sound changes"; for the language of these conquerors must have died out. The only case in which a transfer of the basis of articulation takes place is, according to Hempl, exemplified in the colonization of Gaul by the Romans. "The conquerors are neighbors, who reduce

¹ Cf. also W. Z. Ripley, *The Races of Europe* (1899).

² *Transact. Americ. Philol. Ass.*, XXIX (1898), p. 31.

³ Ratzel, *Sitz. Ber. d. Kgl. Sächs. Ges. d. Wiss.* (1898), I, p. 1.

⁴ P. 226.

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the conquered country to a province, which they colonize and denationalize. The conquerors become the upper class and the influential element of the middle class. The language of the conqueror is in time adopted by the conquered, but it is apt to be learned largely by sound substitution. . . ." Then he proceeds: " . . . if we wish to prove that the differentiation of Indo-European speech was like the differentiation of Roman speech, we must be able to show that the conditions under which the differentiations took place were alike or equivalent. But even a cursory examination of the manner in which the Romance countries were Romanized will make it clear that no parallel could possibly be drawn between the conditions under which the Romance languages arose and those that we can suppose to have existed while the Indo-European languages took shape." I believe that Hempl is right, but that nevertheless ethnological support for the thesis maintained by Hirt can be found. This is the process of "infiltration," as Binger has called it, examples of which are given by Ratzel. The Romanization of Gaul is an example of a premeditated, planned colonization. It is the action of a civilized nation, with a highly developed economic and political organization, closely knit and coherent. But there is a counterpart to such premeditated expansion among savage tribes. Says Ratzel: "It is only because we look upon the past with the eyes of the present that we ascribe purpose and plan to all ethnic movements. History shows us so many carefully planned and premeditated migrations that we are inclined to assume them also for prehistoric times. And yet it is easily seen that the farther back these migrations lie the less can they have been carefully planned or carried out. In order to set a goal for a migration, it is

necessary to have a wide geographical horizon. This, we have seen, is only acquired by centuries of toil and sacrifice. An organized migration presupposes organization of the migrating masses, which could only gradually be attained. Long before states became strong enough to found colonies by a systematic direction of emigration, numberless smaller and larger tribes must have become fused by migration and developed into larger wholes, spreading over more extensive areas. . . . This unconscious migration lacks goal and road. . . . Many disconnected movements slowly push forward in one direction or another, small groups of one tribe are wedged into the fissures of another, and a scattered expansion is thus produced. It is an infiltration, as Captain Binger has aptly called it in speaking of the Fulbe of the Western Sudan. Even better, perhaps, is the term 'diehndi,' *i. e.*, 'worms,' a name given by the Baluba (Luba) to such immigrants, namely, the Kioko, who as hunters and traders have 'wormed' themselves into their territory, and after a while succeeded in living in their villages under chieftains of their own and even in obtaining political influence, as can be seen in the Kalunda villages. The first stages of such infiltration may escape notice, but when reinforcement or natural growth strengthens the newcomers, they expand, and where before they begged for land, they now demand it or take it with force and arms. This is the career of the Fulbe in the Sudan, where they appeared as poor herdsmen to end as rulers of extended lands; by occupying the most important places, they caught the inhabitants in a net, the first meshes of which were imperceptibly woven by the hands of the first immigrating individuals. No violent expeditions accompany such infiltration, which at one blow place a conquering nation in the

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very heart of a tottering realm. Instead it proceeds with noteworthy steadiness and does not suffer from great reverses. Of the advance of the Fan, first in a westerly, then in a northerly direction, we have a few definite data. In 1856 they were found sporadically on the Gaboon; at the beginning of the seventies they ruled over the territory on the right bank of the Ogowé; in 1875 they had reached the coast; since the close of the eighties they appear in southern Kamerun. . . . In Africa these movements take place among tribes which in density of population and degree of civilization are similar. The same process may be assumed to have taken place elsewhere upon the earth during corresponding stages of civilization. Especially in the Stone Age, which perhaps witnessed the earliest Aryan invasions, the inhabitants of Europe can hardly have been less mobile than the invaders, and the latter must have found many fissures, perhaps large unoccupied tracts of land between thinly settled areas."

Under such conditions there arises a language rivalry which does not fall under any of Hempl's categories, for he provides only for a conflict between higher and lower civilizations and between superior and inferior numbers. At a given period of the process sketched above there will be an equilibrium in numbers, political power, and degree of civilization, or preponderance along one of these lines will be equalized by deficiencies along another. Here, then, are the conditions favorable for the creation of a secondary language, or perhaps of a number of secondary dialects, which G. v. d. Gabelentz and Loewe have aptly called "contact languages."¹

¹ Cf. Georg v. d. Gabelentz und A. B. Meyer, in *Abh. d. Kgl. sächs. Ges. d. Wiss.*, VIII (1882), p. 375 ("Contactsprachen," p. 382); R. Loewe *Jahrbuch d. Vereins f. niederdeut. Sprachforsch.*, XIV (for 1883, pub-

"By contact language," says the latter, "I understand a language which one uses in intercourse with members of a speech community not his own." All elements introduced into this contact language from the foreign idiom cannot fail, of course, to be influenced by the habits of the native dialect. Gradually, the political and economic conditions continuing as before, this contact language becomes conventional, gains uniformity, is handed down from generation to generation, and may cover large areas. The most striking example is the large group of African languages north of the equator and extending to the great desert and eastward to the countries of the Nile (the languages of Lepsius' second zone, of which the Hausa has the widest distribution). These languages, as Lepsius¹ has shown, are the result of a fusion of the languages of the first (southern) zone (the Ba-ntu languages) and those of the third zone (the Hamitic languages). Lepsius does not hesitate to claim Hamitic origin for the Hausa in spite of the large admixture of negro elements; yet the physical type of the Hausa is distinctly negroid, much farther removed from the Hamitic type than from the negro neighbors, among whom the Hausa are now settled. They gradually pushed their way into the southern territory, and settling in the fertile country between the Niger and the Tsâd (Chad) basin were gradually absorbed by the surrounding negro population. Their language survived; not in the form in which they brought it from Lybia, but preserved as the dominating element of a "contact language," which, when they began to have intercourse with the indigenous negro population,

lished 1889), and *Zt. f. Völkerpsych. u. Sprachw.*, XX (1890), p. 261 ff. (In this second paper he uses the term "Berührungssprache.")

¹ In the Introduction to his *Nubische Grammatik* (1880).

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arose, became conventional, and spread over the western Sudan.

In such a way the Indo-European immigrants, slowly filtering through Europe, may have been largely absorbed by the earlier tribes; long before such anthropological and ethnological absorption can have taken place contact languages must have sprung up in which and through which essential features of their idiom were preserved; these, in turn, may have consolidated in the same proportion in which the diffuse clans and tribes consolidated into more coherent bodies; and with the survival of the best organized, most centralized community its dialect survived.

The manner in which, according to observed facts, the Aryanization of Europe may have taken place does not militate against the theory of "ethnological speech change." But, as far as I can see, such an assumption can be made only in a general way, and for want of data must remain vague, indefinite, and therefore somewhat unsatisfactory.

- 28 Looking back upon the preceding paragraphs, no one can fail to be impressed with the difficulty of adequately accounting for a given phonetic change, and with the numberless cases which as yet defy explanation. How many of the changes stored up in our compendia do really yield to a causal explanation? "En tout champ d'études, les constatations pures et simples excèdent prodigieusement les explications," rightly says Tarde. Language makes no exception. It is from this point that a discussion of "phonetic laws"¹ must take its start.

¹ Best for orientation and with a very full bibliography (p. 529), is E. Wechssler, "Giebt es Lautgesetze?" in *Forschungen z. roman. Philol.* Festgabe für H. Suchier (1900), p. 349. Cf. of the more recent literature especially Wallensköld, *Zur Klärung der Lautgesetzfrage* (in *Abhandlungen Herrn Professor . . . Tobler . . . dargebracht*), 1895, p. 289;

In 1876 Leskien closed the preface to his monograph on the Slavo-Lithuanian and Germanic Declension with the memorable words: "In my investigation I have maintained this principle, that the phonetics of a case-form should never imply an exception to sound-laws which hold good elsewhere. In order to avoid misunderstanding I will add: if by an exception we mean an instance in which, for definite and clearly visible reasons, the expected change did not take place, . . . then I have nothing to say against the thesis that phonetic law admits of exception. The law is not thereby invalidated; it continues to operate where one disturbance or another does not suspend it. But if we permit deviations which are ascribed to chance and cannot be brought into a system, we declare that language is not a fit subject for scientific investigation."

In this passage are contained all the principal elements which in an almost endless variety and combination appear and reappear in the subsequent controversy which lasted for about two decades.

In 1858 Curtius¹ wrote in the first edition of his *Grundzüge der griechischen Etymologie*: "If the history of language really showed such sporadic aberrations, such

Passy, *Étude sur les changements phonétiques et leurs caractères généraux* (1891), with Vietor's review in *Indogerm. Forsch. Anzeiger*, IV, p. 6. Brugmann, *Grundriss*, I (2d ed., 1897), § 55 ff., p. 63; G. v. d. Gabelentz, *Die Sprachwissenschaft* (1891), p. 191; Gröber, *Grundriss der roman. Philol.*, I (1888), p. 231; Paul, *Grundriss der german. Philol.* (1898), I (2d ed.), p. 121; Sievers, *Grundzüge d. Phonetik* (4th ed., 1893), p. 243. On the different definitions of the term "Law," cf. especially Eucken, *Die Grundbegriffe der Gegenwart* (2d ed., 1893), p. 173; Tobler, *Über die Anwendung des Begriffs von Gesetzen auf die Sprache* (*Vierteljahrsschrift f. wissensch. Philosoph.*, III, p. 32); Wundt, *Über den Begriff des Gesetzes, mit Rücksicht auf die Frage der Ausnahmslosigkeit der Lautgesetze* (*Philosoph. Studien*, III, p. 196) [cf. also his *Logik*, II,² part 2, p. 129]; *Völkerpsychologie*, *Die Sprache*, I, p. 348 ff.

¹ I, p. 67.

pathological, wholly irrational phonetic malformations, we should have to give up all etymologizing. For only that which is governed by law and reducible to a coherent system can form the object of scientific investigation; whatever is due to chance may at best be guessed at, but will never yield to scientific inference." So far he anticipates Leskien. But he continues: "Things, however, to my mind are not so bad; we shall adhere to laws and rules though there be a few exceptions and deviations. . . ." Here they differ. To Leskien there cannot be any unexplained exceptions ("zufällige unter einander in keinen Zusammenhang zu bringende Abweichungen"). Here, then, is the methodological advance of the so-called neo-grammarian school: Nothing must be left to chance. If from a majority of cases a "law" has been deduced, the minority, the exceptions to this "law," must be explained, a definite visible cause ("eine bestimmte, erkennbare Ursache") must be assigned for them. In many cases associative interference in its various forms, which leads to analogy formations, is such a disturbing factor. Any other sufficient cause would satisfy Leskien's demand equally well. But as associative interference plays so important a part in the development of language, most "exceptions" found their explanation here. The dissenting minority is accounted for as the result of "analogy formation."

But how about the "phonetic law" itself? Is the demand for a causal explanation extended to it? By no means. The "phonetic law" (as this term is used by Leskien and his followers and in current grammatical terminology) rests its claim to recognition not upon a *causal explanation* but upon its *relative universality*. That is to say: Because a certain sound change can be observed in a large mass of cases it is elevated to the

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rank of a "phonetic law." The question why such a change took place is not asked. It is only in the case of "exceptions" that we meet the demand for a causal explanation.

It is true that some of our "phonetic laws" imply that the *conditions* under which the change takes place are its cause. *E. g.*, the law which states that Primitive Greek τ before unsyllabic ι changes to σ (* $\pi\lambda\acute{o}\upsilon\tau\iota\mu\acute{o}\varsigma$ becomes $\pi\lambda\acute{o}\upsilon\sigma\iota\mu\acute{o}\varsigma$) carries with it the implication that the ι assibilated the τ .

Some others limit at least the range within which certain changes occur. *E. g.*, primitive initial σ before *sonants* changes to h ('), as $\acute{\epsilon}\pi\tau\acute{\alpha}$ (Latin *septem*), \acute{o} (Sanskrit *sá*). But the majority of our so-called "phonetic laws," including some of the most important ones, consists of nothing but statements averring that such and such a sound changed into another sound. So we have the Ionic "sound-law" that Primitive Greek \bar{a} ($\mu\acute{\alpha}\tau\eta\rho$) changes to η ($\mu\acute{\eta}\tau\eta\rho$) or the English "sound-law" that Old English long \bar{a} (*nāme*) changes in Middle English to \bar{e} (*name*). Why such a change takes place the "law" does not inform us. The fact that the change is relatively universal is sufficient to establish the "law." The term "law," therefore, is used in grammar with a peculiar and special signification. It stands for a formula by which a large mass of phonetic correspondences are summed up. Instead of saying

1,	Primitive Greek	$\mu\acute{\alpha}\tau\eta\rho$	corresponds to	Ionic	$\mu\acute{\eta}\tau\eta\rho$
2,	"	"	$\sqrt{\sigma\tau\bar{a}}$	"	"
3,	"	"	$\tau\acute{\iota}\mu\bar{a}$	"	"
etc.	"	"	etc.	"	"

these single correspondences are summarized in the formula:

Primitive Greek \bar{a} corresponds to Ionic η .

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This "law" then is the formulaic statement of an observed regularity in phonetic development. It is not a formulaic statement of the observed sequence¹ of two phenomena which stand to each other in the relation of cause and effect. The term "law" has undergone so many changes of meaning since it was first introduced from jurisprudence into the various sciences that it would be futile to try now to oppose its use where it has once been firmly established. This is mainly a question of terminology and hardly debatable, although it is clear that the use of the same term in a number of more or less different senses tends to confusion. So much the more is it necessary to define for each case the exact significance which the term is to have. This ought to have been the first task in the discussion of the problem during the seventies and eighties. Unfortunately for a speedy settlement the issue was shifted from an investigation of the nature of the statements which go under the name of "phonetic law" to a discussion of the thesis "phonetic laws permit of no exceptions (except those caused by analogy)." The unhappy framing of this thesis is responsible for the length and unsatisfactory nature of much of the controversy, for whenever the terms of a proposition are not clearly defined at the very outset and the disputants do not agree upon one definition, misunderstandings are sure to follow.

- 20 Starting with the proper demand that nothing in language must be assigned to chance, the neo-grammarians insisted, as we have seen, upon a causal explanation of all exceptions. As Brugmann² states it: "An die

¹ Jespersen, in *Teichner's Internat. Zt.*, III (1897), p. 215; Wallenstjöld in *Annuaire Herrn Professor . . . Teichner . . . dargestellt* (1895), p. 291.

² *Zum heutigen Stande d. Sprachw.* (1895), p. 49.

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Praxis stellte diese Auffassung des Lautwandels die Forderung, *überall nach einer Erklärung der Unregelmässigkeiten zu suchen.*" Why did they not exact the same for the "laws" themselves? Because they started with the axiom (for no proof of it was attempted) that the "laws" are physical, and a contrast was soon established between them and the psychological (analogy) exceptions. This view of the nature of "phonetic laws" appears in the following passages, which may be taken as typical.

Osthoff and Brugmann (1878), in the preface of their *Morphologische Untersuchungen*, lay down these "two most important methodological principles of the neogrammarian school: First, all sound change so far as it is *mechanical* proceeds along laws without exception. . . . Second, since the association of forms, *i. e.*, the analogical creation of new forms, plays a very important part in the life of modern languages . . . it must surprise no one if analogy formations played the same or even a greater part in the earlier and earliest times. . . ."

It is plain that "analogy formations" are here contrasted with "phonetic laws." The latter are "mechanical." Elsewhere Osthoff¹ sees in them the "physiological" element in the transformation of speech, while analogy formations represent the "psychological" element. The same is also very clearly stated by Ziemer:² "All sound changes follow invariable laws. . . . Hence results a sharp distinction between physiological

¹ Ueber das physiologische und psychologische Element in der sprachlichen Formenbildung (Sammlung gemeinverständlicher wissenschaftlicher Vorträge, hrsg. v. Virchow u. Holtzendorff, Serie XIV, No. 327, p. 505).

² Junggrammatische Streifzüge (1882), p. 7.

and psychological processes. All seeming exceptions must be explained as due to psychological causes.”¹

It may well be that we have here some lingering traces of Schleicher's conception of language as an independent organism, which led him to class linguistic science with the natural sciences. But it seems very probable that, to a much greater degree, this “mechanical” or “physiological” conception of “phonetic laws” was unconsciously based upon the regularity with which phonetic changes take place. As methods improved, this regularity steadily increased. What had seemed irra-

¹ This physiological theory of the origin of all those sound changes which are classed as “phonetic laws” is the reason why, according to current theory, all analogy formations are restorations, never preservations of an older sound. Cf. *e. g.*, Brugmann, *Zum heutigen Stande der Sprachwissenschaft* (1885), p. 52: “Ebenso ist auch die Annahme zurückzuweisen, dass ein Lautgesetz zuweilen darum nicht consequent wirke, weil der Laut durch die Rücksicht auf verwandte Formen festgehalten werde. Ein Festhalten des σ von $\xi\sigma\tau\eta\sigma\alpha$ (neben $\xi\delta\epsilon\iota\zeta\alpha$) oder des ι von $\kappa\epsilon\lambda\alpha\tau\alpha\iota$ (neben $\kappa\epsilon\lambda\mu\epsilon\theta\alpha$) wäre nur denkbar unter der Voraussetzung, dass der Sprechende etwas von der drohenden Veränderung wusste und sich im Voraus zu hüten suchte. Davon kann in keinem Falle die Rede sein. Überall wurde die Form erst von der Aenderungsneigung ergriffen, wenn auch vielleicht nur in geringem Grade, dann erst konnte die Wirkung des lautlichen Factors durch den andern, die Analogie, aufgehoben werden.” While analogical restorations are as numerous as analogical new formations, there is no warrant for the assumption that analogical preservation is impossible *per se*, except upon the theory that all sound change is physical, and originates simultaneously in all members of a speech-group. A form like $\xi\sigma\tau\eta\sigma\alpha$ was closely associated with the other sigmatic forms like $\xi\delta\epsilon\iota\zeta\alpha$ long before the conversion of intervocalic σ to h and its final loss took place. It is, of course, not possible, but also not necessary, to assume that the speakers tried to guard against its loss; what prevented the change is the close association of sigmatic aorists in one functional group, of which the naïve speaker is not all aware. Since the loss of intervocalic σ is, according to the theory of the text, mainly a psychological phenomenon — as far as its imitative spread through the community goes, purely a psychological one — we have here a conflict between two psychical tendencies.

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tional exceptions to Grimm's law were removed by Verner's law.¹ Seemingly capricious interchanges of Sanskrit gutturals and palatals in the same word (as *jáyati*, "he conquers," *gáya*, "booty") received full explanation by the Palatal Law.² A comparison of this phonetic regularity with the regularities of which the natural sciences could boast was unavoidable. And because in these the processes exhibiting such regularity were physical, therefore the processes which became manifest in "phonetic laws" were also regarded as physical (mechanical, physiological). On the other hand, in the psychological processes of the individual such uniformity was not observed, they were irregular, hence they were thought to be the source of the disturbing elements which interfere now and then with the physical "laws." A careful perusal of many passages similar to those just quoted will clearly show that in the minds of many of those who took part in the early stages of the controversy about phonetic "laws" the idea of regularity, uniformity, and "law" is strongly linked with the physical nature of the phenomena; while "psychological" is felt as equivalent to "irregular," these processes being considered so mobile that they were practically beyond the pale of "law." Even in Paul's discussion of sound changes this division is still visible. "Sound change in the narrower sense of the term" is, according to him, produced by a "displacement of the motory sensations;" this is uniform, like the older physiological or mechanical change. "But there are other phonetic changes . . . which must be separated from this sound change in the narrower sense; . . . cases in which elements of a word exchange their places (metathesis) . . .

¹ Kuhn's *Zt.*, XXIII, p. 97.

² Cf. Bechtel, *Hauptprobleme* (1892), p. 62 and 332.

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also assimilations . . . (and) dissimilations." Why are they contrasted with the former phonetic changes? Because they are less regular. I do not hesitate to assert that the term "law" was chosen for certain phonetic observations because of the regularity and uniformity of their occurrence. Regularity and uniformity are not deductions which were based upon the nature of what was called a "phonetic law," but the term "phonetic law" owes its existence to the regularity and uniformity of the phenomena which it summarizes.

The creation of this term has had two very different results. A very wholesome one in enforcing a strict method of phonological investigations in so far as it insisted that all exceptions to a rule based upon the majority of instances must be explained. But in another respect its effect has been much less beneficial. This cannot be better characterized than by a passage from Eucken's *Die Grundbegriffe der Gegenwart*: "There is danger that through too lax and liberal a use of the term 'law' the problem may be confounded with its solution, the beginning of scientific inquiry with its end. By empirically discovering regularities in the chaos of events . . . we open definite roads for subsequent investigation. . . . (For) it is evident that as such regularities may be the results of manifold antecedent factors, they must form the starting point for further investigation. If, according to common usage, they adorn themselves with the name of 'law,' they are likely to appear more primitive, more authoritative, more complete, than they really are. . . . A liberal use of the term 'law' has made very complicated problems . . . appear as if they were simple and stood in no need of further analysis; and thus the incentive to further investigation has been weakened. What was not much

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more than a formulation of the problem thus appeared at times as its solution." This is exactly what has happened in grammar. A series of relatively uniform sound substitution was summarized in a brief formula. Because of this relative uniformity the formula was called a "law." And finally, completing the vicious circle, because it was a "law" it must needs be universal. From these considerations it is seen that the crucial point of the whole question is an exact determination of the character of this relative uniformity in sound change, which lies at the bottom of the whole theory of "phonetic laws." For it is clear that our conception of the nature of a formula which summarizes certain uniform facts must be derived from the nature of these uniform facts, and not *vice versa*. Here is, to my mind, the fundamental methodological error in most of the discussions of "phonetic law;" they begin at the wrong end; they start with a definition of phonetic law instead of ending with it; their method is deductive instead of inductive.

- 30 An inquiry into the uniformity of sound changes must deal with two problems: first, what is the degree of uniformity which sound changes exhibit; second, what is the reason for such uniformity.

The answer to the first question depends to a large extent on the material examined. If this consists in a selection of the written records of a literary language the uniformity will be much greater than when we examine the actual everyday speech of a living dialect. For two reasons. In the first place the literary language owes its origin to a process of elimination. It is an artificial product, the very end of which is uniformity in pronunciation, vocabulary, style. This is true of any literary language, even when it is spoken. Where,

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however, the literary language is known only through written records, it presents an appearance of still greater uniformity. For its words become fixed symbols, cast in a conventional orthography around which a variety of pronunciation clusters. Although it is true that the authors of the *Morphologische Untersuchungen* (1878) insisted in the strongest terms that comparative philology can get its methodological principles most safely from a study of modern living languages, and that a study of the natural speech of everyday life gives us the clew to unravel prehistoric changes, yet an examination of the works of those who took part in the controversy will show that their arguments were largely based upon observations made in the literary languages of past periods. But distance, spelling, and literary usage are three coats of snow which hide many a sharp edge. It is very noticeable that Schuchardt,¹ who of all the participants in this controversy had probably the widest and most intimate knowledge of modern languages, was much less impressed with the universality of "phonetic laws." Whitney² (1894), in one of the last papers with which he enriched science, following up a suggestion of Tarbell³ (1887), investigated the distribution of the peculiar short *ō* in New England (in "stōne," etc.) together with a number of similar cases, like the short *u* in *rūt* (root), *rūf* (roof), and came to the conclusion "that in this living language, at any rate (for other languages let others speak), vowel-mutations are not at present effecting themselves with an all-involving sweep, but partially and by gradual extension; that there may be and is a hard and fast line drawn in the usage of an

¹ *Über die Lautgesetze* (1885).

² *Indog. Forsch.*, IV (1894), p. 32.

³ Tarbell, *Transact. Amer. Phil. Ass.*, XVII (1886), p. 13.

individual, and hence of a body of individuals or a community, between words that have yielded to a certain phonetic tendency and others that have not, fixity thus failing to imply consistency; that in a class of phonetically similar words, one or a few may change without carrying the rest with them; in short, that phonetic change is not invariable here, but honeycombed with inconsistency and anomalies, while yet doubtless the leading tendencies are working themselves out to ultimate uniformity." All observations on modern dialects as they are actually spoken tend to confirm this, though a comprehensive treatment of this most important phase of the question is yet wanting. It is for this reason that I have spoken of a relative uniformity of phonetic changes. This relative uniformity *may* at times amount to an absolute uniformity, but it does not necessarily do so, and often such absolute uniformity is only apparent because dissenting data are wanting on account of deficient material at hand.

- 31 The facts of modern dialects do not therefore warrant a claim that all sound changes are always uniform. The formulae which summarize these changes must often be based upon *relatively* uniform material. Still there is great regularity in many phonetic mutations. What is its origin? "Simultaneous change in the articulation of a large number of individuals tending in the same direction," is the usual reply. So, for instance, Brugmann: "The movements by which sounds are made are not absolutely constant either within the same individual or within different individuals of the same community. These oscillations, however, are so slight that they are not felt as differences by either speaker or listener [see on this theory p. 246]. Now if the single individual stands isolated and his tendency toward modi-

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fication is opposed to that of his fellows, he cannot to any great degree yield to it because he unconsciously corrects his shifted motory sensation according to the sound which he hears from his fellows; every one is dominated by the society within which he lives. It is, therefore, necessary that the same tendency toward modification should be present at the same time in a large number of individuals to insure its victory." In other words, according to this prevailing theory, many individuals, quite independent of one another, simultaneously hit upon the same change. The uniformity of the change is due to the fact that each individual of the community by himself at a given period makes a certain change. Such a theory leads inevitably to a mechanical, physiological explanation of all speech change. For, of course, we cannot stop at the mere assumption of a "tendency" common to many members. Whence this uniform tendency? The answer must be because either the organs of speech or the brain have undergone certain uniform changes. Again we ask: And why should they be uniform? And the answer is because they are due to climatic conditions, or to race mixture, which affected many individuals alike. Upon these questions I shall not enter here again. To my mind, the whole theory rests upon three fundamental errors. (1) It tries to explain linguistic facts as the product of the individual, instead of regarding them as social products. (2) It sees in social intercommunication a conservative factor only, while in reality social contact and the imitations which it entails are at the bottom of all changes as well. (3) It fails to distinguish between the origin of a change and its spread.

For the proper understanding of the manner in which all changes in language (phonetic ones included) take

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place, it is of the utmost importance to maintain the sharp distinction between original and imitative changes which was made above. Every phonetic change which survived started as an original change and spread as an imitative change. Brugmann's theory, on the other hand, would make it both start and spread as an original change. The causes for its spread may lie in the nature of the change, but much oftener they lie outside of it. A linguistic change does not gain currency because many individuals at the same time independently produce it, but it spreads because many individuals are willing to accept and to imitate it. Viewed in this light, phonetic changes cease to occupy an isolated position, as if they were *toto caelo* different from other linguistic changes (for a similar theory regarding lexicographical or syntactical changes has never been urged). It is only in this way that all linguistic changes (now forming a homogeneous whole) are seen to rest upon the same basis as other social changes, such as modifications in institutions, beliefs, and customs.

The disinclination to regard them in this light emanates from two sources. In the first place imitation is misunderstood as implying conscious, willed imitation (copying). After what has been said above, this objection falls to the ground. Imitation in the sense in which it is used here means such repetition by members of a community as is neither willed nor observed by them, but is the bond by which a community is held together in its language, institutions, beliefs, and customs. This imitation acts both as a conservative and as a progressive factor; as the former, when it is the repetition of old things, as the latter, when it is the repetition of new things. The "centrifugal" and "centripetal tendencies" in social life are manifestations of

the same fundamental principle, namely, imitation, upon which all society rests. The other source is the belief that there can be but one uniformity, namely, that physical uniformity which appears in the objects with which the natural sciences deal. From this arises the conviction that all uniformity implies physical causes. Against this one-sided view the possibility of extra-physical uniformity cannot be too strongly insisted upon. A second category of uniform phenomena must be established which is psychical in its character and which rests upon the basis of social suggestion. The uniform phenomena of language, belief, and custom belong here. Grammar, like the history of beliefs and customs, is, as Tarde aptly put it, "*la collection . . . des choses les plus réussies, c'est-à-dire des initiatives les plus imitées.*"¹

- 32 We have seen above that the term "phonetic law" as used in grammar usually refers to the summary statement of more or less uniform sound correspondences, be it between a sound of an earlier period and that of a later period, be it between contemporary sounds of distinct dialectal varieties. As a general rule it does not refer to an observed sequence of a number of phenomena which stand to each other in the relation of cause and effect. What we then call "phonetic laws" must form the material, a study of which may lead to the establishment of causal laws. These latter, however, will no longer be strictly phonetic in character, but will appear in the form of general psychological or physical laws. There are no particular causal laws for phonetics any more than there are particular causal laws for the other departments of social science; there are only the general laws of psychological and of physical development under

¹ *Les lois de l'Imitation*,² p. 187.

which the particular phenomena in the evolution of language, belief, and custom must be subsumed. To speak of "phonetic laws" in this second sense is as inappropriate as if one were to speak of "zoölogical" or "botanical" laws. In all these departments there are many phenomena which occur with the same or even greater uniformity than the sound changes in language. These, however, are not themselves laws, but they find their ultimate explanation in general physical laws. In fact the problem is to express the particular zoölogical or botanical phenomenon in terms of a general physical or chemical law. It is this which we call explaining a phenomenon. Just so in language, the problem is stated when a series of uniform correspondences is established. (A mass of these, the result of great ingenuity and effort — for they are often hidden, — are treasured up in our compendia under the name of "phonetic laws.") The problem will be solved by showing how each of these particular phenomena comes under a general psychological or physical law, *i. e.*, in correlating individual linguistic facts with general psychological observations. The same applies to other "psychological sciences," such as sociology, mythology, jurisprudence, etc. These also frame formulae in which certain uniformities are stated, but it is only when they succeed in reducing the complex individual phenomenon to the simple terms of a psychological law that they have solved their problems. That a β appears between μ and ρ in Greek is a linguistic formula; that increase of speed impairs the nicety of co-ordination of movements is the general psychological law, which applies to all movements, and to which this formula must be referred. Such correlation, as stated above, is the real, dynamic problem, and, therefore, the task of linguistic science.

LECTURE V

CHANGES IN LANGUAGE

III

Semantic Change

¹ "EVERY linguistic utterance," says Apollonios Dyskolos,¹ the keenest of Greek grammarians, in his monograph *περὶ ἐπιρρήμάτων*, "presents two aspects: first, in respect to its significance, second, in respect to its phonetic form." (*Πάσῃ λέξει παρέπονται δύο λόγοι, ὃ τε περὶ τῆς ἐννοίας καὶ περὶ τοῦ σχήματος τῆς φωνῆς.*) A consistent application and elaboration of this division lies at the bottom of Ries' valuable attempt to reform the current arrangement of grammar.² The raw material out of which languages are fashioned consists in sounds (a limited set of which is characteristic for any given language), the stress, the pitch and the tempo with which they may be uttered, the pauses by which sounds may be separated, and the order in which sounds and sound-complexes may be arranged. This list com-

¹ *Περὶ ἐπιρρήμάτων* in *Anecd. Graec.* ed. Bekker, II, p. 529, 1 = Buttmann, *Des Apoll. Dysc. vier Bücher* (1877), p. 282.

² The chief characteristic of Ries' arrangement (in *Was ist Syntax?* [1894]) is his distinction of three objects of study: (1) Sounds, (2) Single words, and (3) Combinations of words or word-groups. Each one of these presents itself under a two-fold aspect, namely, (1) that of form (morphological, schematic aspect), and (2) that of meaning (semantic aspect),

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prises all the means of linguistic expression. All meanings must find expression either in sounds, intonation,

excepting sounds, which, of course, are meaningless. The whole subject of grammatical and lexicographical study may then be tabulated as follows:

OBJECTS OF STUDY				
ASPECTS OF THESE OBJECTS	A. SOUNDS	B. SINGLE WORDS		C. WORD GROUPS
		1. Words as a whole.	2. Formative elements, except those which express relations of words to each other.	1. The relation of one word to another. 2. The relation of a group of words to another group.
I FORM [Morphological aspect.]	1	2	4	6
II MEANING [Semantic aspect.]	(There is no semantic aspect of sounds.)	3	5	7
				8
				9

Of the nine departments into which the field of linguistic study is thus divided, no. 1 corresponds to our present Phonetics, and Lexicography (taken in a wider sense than usual) might cover nos. 2 and 3; for sections 4 to 9 an adequate terminology is wanting, as our current terms (e. g., syntax, morphology) do not fit. The greatest difficulty in the way of a practical application of this arrangement is the polysynthetic character (p. 289) of the Indo-European formative elements. The same formative element belongs frequently to B 2 and C 1. The difference between B 2 and C 1 has been emphasized by Powell, "Evolution of Language" (First Annual Report Bureau of Ethnol. Smiths. Inst., 1881, p. 7): "It should be noted that paradigmatic inflections are used for two distinct purposes, *qualification* and *relation*. A word is *qualified* by inflection when the idea expressed by the inflection pertains to the idea expressed by the word inflected; thus a noun is qualified by inflection when its number and gender are expressed. A word is *related* by inflection when the office of the word in the sentence is pointed out thereby; thus nouns are related by case inflections; verbs are related by inflec-

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emphasis, tempo, or position. Whenever these expressive elements are combined in a definite and fixed relation and sequence for the purpose of conveying a meaning, a language-form (*μορφή*, Apollonios' *σχῆμα*) is produced. The study of the various forms which a language actually employs and in which all thoughts of a linguistic community must be cast is the province of morphology,¹ a term which is here taken in a much wider sense than usual, when it is confined to the study of the parts into which words may be analyzed (such as stem, root, prefix, suffix, endings). As here understood morphology applies to the study of linguistic form in general, comprising the forms of words taken as a whole, the forms of their component parts, and the forms of sentence structure as well. For the same means, and none but those enumerated above, are available for all three. In fact morphology (schematology) is not so much the treatment of a certain particular set of objects as the manner of treating any linguistic expression from a certain point of view, namely, that of its form.

Our dictionaries register a large mass of word-forms, *i. e.*, sounds arranged in a fixed order, and charged with some meaning. *E. g.*, the sounds *b*, *a*, *r*, *t* in this

tions for gender, number, and person. All inflection for agreement is inflection for relation."

It has been noted by Wackernagel (*Altind. Gramm.*, p. lxvii) that Pāṇini, I, 2. 56 f. implies a clear distinction of the formal and semantic aspect. The passage referred to would exclude all semantic considerations from grammar and confine the latter to a purely formal analysis.

¹ Or, better perhaps, of schematology; for since the term "morphology" has been pre-empted in current grammar for the study of the formative and inflectional elements of words (the so-called "morphological" elements), though it treats these not only as to form (*μορφή*) but also with regard to meaning (cf. *e. g.*, Brugmann's note and references in his *Griech. Gramm.*,³ p. 365, § 426, note), it might be better to adopt Apollonios' *σχῆμα*, and contrast the "schematic" aspect with the "semantic" aspect.

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order mean in German "beard," in the order *t, r, a, b* they are associated with another meaning. Position here determines meaning. In the same manner in which German "trab" differs from "bart," namely, by the order of its elements, the English dubitative sentence "I may be hanged" differs from the optative "May I be hanged." In both cases the same sounds or sound-complexes remain, the particular form depends on their order.

For the interrogative sentence (apart from the frequent inversion) English employs a certain intonation which is characterized by an ascending pitch, and thus distinguishes between the interrogative "John is his name?" and the affirmative "John is his name" (with descending pitch). But this is not an exclusively syntactical device, for the Siamese thus distinguishes between *klōm*, "round," and *klōm*, "to make round." When we separate an Indo-European word like Latin *feram, domini* into its component parts (or what is usually called its morphological elements), we simply single out certain sequences of sounds in which a certain meaning is thought particularly to rest, as *-am* of *feram*, which represents a certain tense, mode, and person, or *i* of *domini*, which represents a certain relation, gender, and number. But except for the fact that these "morphological parts" do not occur independently and have entered into an inseparable union with their "stems," they do not differ in any way from "words." The *-s* in English, "the man's son," is exactly equivalent to the interposed "of" in "the son of the man." Both are sounds, charged with a definite meaning; their dependence and independence is a matter of quite secondary consideration; they stand in the same relation to each other as *re-* to *rursus* in *recepit* and *rursus cepit*.

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2 The hearer is first confronted by the form. He understands what is said by associating with the moulded and formed speech material the same contents with which these forms were associated by the speaker. To insure such identity of associations is the chief and difficult end of all language. We learn to understand a foreign language in this same manner, namely, by learning many forms (*i. e.*, words, constructions, phrases) and associating a meaning with each so closely that hearing or seeing the former will awaken the latter. This, however, does not in any great degree help us to use the language, for the direction of our associations having once become habitual cannot be reversed at will. Very small experience teaches that "a pupil who should learn Greek vocables in such a way that he would always first pronounce the Greek word and then the German equivalent, would gain but small proficiency in matching a German word with its Greek equivalent."¹ A new set of associations between ideas and linguistic forms must be established in order to be able to speak a language. Facility in speaking a language is therefore no adequate test of a person's understanding of it. If the hearer starts from the form and looks for its content, the speaker starts with the content and seeks forms to convey it.² A study of this content in relation to the linguistic form with which it appears associated is the province of semasiology. This term also is here taken in a wider sense than that in which it is often

¹ Höfler, *Psychologie* (1897), p. 172.

² On this double treatment of grammar cf. especially v. d. Gabelentz, *Zt. f. Völkerpsych. u. Sprachwiss.*, VIII (1875), p. 130; *Zt. d. deut. morgenländ. Gesell.*, XXXII (1878), p. 634; *Die Sprachwissenschaft*, p. 86. His larger and smaller Chinese grammars are arranged according to this plan. Cf. also Scherer, *Zt. f. d. österreich. Gymnas.* (1878), p. 119= *Kleine Schrift.*, I, 368.

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used. It comprises the study of the meaning of all language forms, not simply that of word-forms. Like morphology, it does not deal with a separate set of objects, but it is the second aspect under which all linguistic utterances must be viewed. The problems with which semantics has to deal are general and particular. The general problem is the question: What calls for expression in language? What must or may be conveyed to the listener?¹ The particular problems are: By what means has a given language in each individual

¹ It is in the consideration of this problem that the need of an algebraic notation is most strongly felt, by which the investigator may be enabled to emancipate himself from the "sweet authority of his particular speech habit" (Trendelenburg, *Historische Beiträge z. Philosophie* [1867], III, p. 27). For it is only in this way that we can see what is essential and unessential in any concrete language and also gain a definite standard by which a given language may be measured and two or more languages of different structure may be compared. The best treatment of this side of the question is found in Stöhr's *Algebra der Grammatik* (1898). A. Trendelenburg, *Historische Beiträge zur Philosophie* (1867), III, p. 1-47, gives a discussion of Leibnitz' attempt to construct an algebraic, universal language together with a sketch of Leibnitz' predecessors and followers. Leibnitz' ideal was a system of algebraic signs which should rest upon a complete analysis of all concepts and ideas and of their relations. If this were once successfully accomplished, all controversies would, he hoped, be reduced to mathematical problems, and every error would be perceived as an error in calculation. E. Schröder, *Vorlesungen über die Algebra der Logik* (1890), I, p. 63, no. § 2, and p. 93, no. α 3, contains a very full bibliography. Cf. also Schleicher, *Zur Morphologie der Sprache*, in *Denkschriften d. kaiserlich russischen Akademie* (1859) [also Lefmann in his biography of Schleicher, p. 42; Steintal, *Zt. f. Völkerpsych. und Sprachwiss.*, I, 432].

The present aversion to everything that savors at all of logic in the treatment of grammar has created a prejudice against even the legitimate use of logical considerations, which are sometimes highly suggestive, as Stöhr's pamphlet proves. Cf. Marty, *Über das Verhältniss v. Grammatik u. Logik in Symbolae Pragenses*, *Festgabe der deutschen Gesellschaft f. Alterthumskunde in Prag*, z. 42. *Versammlung deut. Philol. u. Schulmänner in Wien* (1893), p. 99, who takes however the term "logic" in a wider sense than is usually done (p. 103).

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case expressed its thought? How many meanings is the same form capable of expressing? In how many different forms can the same thought be expressed?

All grammar and all lexicography are contained in the answers to these questions.

- 3 What calls for expression in language? In most cases an idea, a mental picture, and, in connection with it, perhaps some desire. Being, however, of a very composite nature, this can only be gradually conveyed to the hearer. An infinite number of sound-complexes would be needed, if a whole idea were to be associated with each; just as an enormous number of signs would be needed if, like the Chinese, we were to have a different sign for each whole word. For this purpose every such compound impression is first analyzed by the speaker and divided so that he may transmit element after element to the hearer, who in turn puts all these elements together, and obtains in this way more or less exactly the same composite idea which the speaker had. How to enable the hearer to recompose the elements in exactly the same manner as the speaker saw them is the chief problem with which all languages have to grapple. When a man speaks he is not stringing one percept to another, he is doing exactly the reverse;¹ he is analyz-

¹ Cf. Jodl, *Lehrb. d. Psych.*, p. 177: "Es ist der Irrthum aller Irrthümer auf psychologischem Gebiete zu meinen, dass sich unsere Bewusstseinsentwicklung genetisch aus dem aufbaue, was die Analyse als einfaches Element kennen lehrt. Gegeben ist uns ursprünglich immer ein Complex, und der wirkliche Hergang ist nicht der Aufbau dieses Complexes aus seinen Elementen, sondern die Zerlegung dieses Complexes in seine Theile. Das Ganze geht im Leben den Theilen voran; nur in der Wissenschaft ist es umgekehrt." In a very noteworthy paper which R. C. Temple began in the *Journal Roy. As. Soc.*, 1899, p. 597 (= *Ind. Antiquar.*, [August] 1899, p. 197), he says: "I was forced to begin [the treatment of the agglutinative languages] where the other grammars ended, namely, with the sen-

ing a compound idea, moulding it, so that it will be articulate (in the true sense of this word, *i. e.*, become jointed), and he does this because he cannot transmit a compound idea to his neighbor, but can only pass it on to him joint after joint and leave it to him to put them together. Take this passage¹ (Apollodorus *loquitur*): "They met him in the market-place with ashes on their heads and their gods in their hands. They placed the gods at his feet. The only one that was worth looking at was Apis: a miracle of gold and ivory work. By my advice he offered the chief priest two talents for it." The scene before Apollodorus' mind is broken up into a convenient number of elements, for each of which language furnishes a definite symbol. The process of analysis must adapt itself to these symbols, hence the form in which the thought is finally cast differs according to the language employed. This double process, first of analysis by the speaker, then of synthesis by the hearer, may, with a fair degree of accuracy, be likened to the similar double process in writing and reading. In writing a word we start with the aggregate of sounds² which can only gradually be

tence, defining sentence as the expression of complete meaning in language and making that the unit of language."

From the standpoint of the speaker Paul's definition of a "sentence" (*Principien*,³ p. 110): "Der Satz ist der sprachliche Ausdruck, das Symbol dafür, dass sich die Verbindung mehrerer Vorstellungen oder Vorstellungsgruppen in der Seele des Sprechenden vollzogen hat" is undoubtedly wrong. Cf. Wundt's latest exposition of the analytical theory in his *Völkerpsychologie: Die Sprache*, II, p. 234, "Der Satz als Gliederung einer Gesamtvorstellung"; also Jerusalem's *Die Urtheilsfunction* (1895).

¹ B. Shaw, *Caesar and Cleopatra*, Act V, in *Three Plays for Puritans* (1901), p. 201.

² For a word is present in the mind as one whole, not as a succession of sounds.

transmitted. This sound mass is divided into a convenient number of elements, each one of which is represented by a written symbol (the letter). Reading implies a synthesis of these symbols and of the sounds associated with them. Here also the number of symbols is restricted for every language. The simultaneous presence in mind of the symbols is necessary to obtain the word-picture, just as the simultaneous presence of all the elements into which a compound idea has been split is necessary to grasp the idea. As the letters of a word are the stable elements which enter into a large variety of combinations, so the words of our dictionaries are the comparatively stable elements which, entering into a large number of combinations, may convey many meanings.¹ The comparison may be carried one step farther. Every single element into which an idea may be analyzed, if taken by itself alone, is capable of a great variety of combinations, just as every element (letter) into which a word has been divided may enter into an almost in-

¹ Cf. Wechssler (*Forsch. z. roman. Philol.*, Festgabe f. Suchier, p. 367) on the difference between "Wort" and "Äusserung": "Nur das erstere besitzt eine feste, immer aufs neue im wesentlichen identisch reproduzierte Einheit (with a reference to Humboldt's "Das Wort . . . ist [in der Sprache], was in der lebendigen Welt das Individuum"); nicht aber die Äusserung als solche, die stets in neuen Variationen — wenn auch meist in gewissen wiederkehrenden Typen — erzeugt wird." The latter part of this statement has been elaborated by Klinghardt (*Englische Studien*, XIV, p. 95), who uses the term "Ausdrucksform" for the "typische Verbindung zweier oder mehrerer Worte" and subdivides this into (1) "generelle (constructionelle, syntactische) Ausdrucksform" and (2) "individuelle (phraseologische) Ausdrucksform." The former class comprises "forms of expression," "die sich im allerverschiedensten Wortmaterial in endloser Mannigfaltigkeit nachbilden lassen," *e. g.*, the "construction of the accusative with infinitive." To the second class belong phrases which are either absolutely unique and isolated (*e. g.*, "What's the matter?") or partly so (*e. g.*, "How are you?" which may vary within certain limits, as "How is he?" "How is your brother?" etc.).

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definite number of combinations. In both cases as one element is added to another the possibility of these combinations steadily decreases, the area is more and more closely circumscribed, until, when the word is spelt out or the statement completed, all combinations are definitely determined and no freedom of association is left to the hearer.¹ This at least is the ideal of all communication. There are, however, serious difficulties² in attaining it.

- 4 The idea as a whole, therefore, cannot be expressed in language; speech can furnish expression for the elements only of a complex idea. All these linguistic symbols fall into three fundamental categories: (1) names, (2) expressions for the attitude of the speaker, and (3) expressions of relation.

A definite group of sounds which is the symbol for a perceptual or imaginary, concrete or abstract, thing (*e. g.*, house, Juno), quality (*e. g.*, great, greatness, cupidity), action (*e. g.*, to run, laughter), or state (*e. g.*, to burn, sick, health), is here called a name. In grammar it is frequently called a "root," as in Chinese. The term is objectionable on account of its ambiguity; for it denotes two entirely different grammatical conceptions. When we speak of "roots" in Chinese we refer to actual linguistic entities; every Chinese sentence contains a number of such invariable "roots." In Indo-European grammar,³ on the other hand, we mean by "root" that portion of a word which cannot further be

¹ Cf. Stöhr, *Algebra d. Grammatik* (1898), chapter vii, p. 51; Jerusalem, *Urtheilsfunction* (1895), chapter iv, p. 21.

² "One of the hardest things in the world is to convey a meaning accurately from one mind to another," writes C. L. Dodgson (Lewis Carroll) to Miss Dora Abdy. (*The Life and Letters of Lewis Carroll*, by S. D. Collingwood [1898], p. 331.)

³ Brugmann, *Grundriss*, I (2d ed.), part I, § 22, p. 2.

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analyzed. In this sense "root" is contrasted with "formative elements," such as prefixes and suffixes. Whatever cannot be shown to be a "formative element" must be considered a "root." The two are complementary. Both root and formative are necessary grammatical abstractions, depending on the keenness of our analysis and varying, therefore, at different periods.

The logical category of each name is definitely fixed; it stands either for a thing, or for a quality, or for an action, or for a state, and these categories have no inherent connection with the grammatical or syntactical categories of "substantive," "adjective," or "verb," as is clearly seen in the Chinese, where the quality-name *tá* may play the grammatical part of substantive (English "greatness"), adjective (English "great"), adverb (English "greatly"), or verb (English "to be great," "to make great").¹ This freedom the grammatical architecture of the Indo-European sacrificed when it decided² to attach uniformly to every name a label by which the grammatical rôle it was cast to play might be indicated. In Chinese, roots do not make-up until they enter upon the sentence stage, when by their position their rôles are indicated. In Indo-European no word can ever lay its syntactical make-up aside.

No language, it appears, has thought it fit to make any consistent formal distinction of names according to the logical categories given above, distinguishing, for instance, by accent or vowel changes, quality words from action words.

¹ This distinction between logical and grammatical category is well brought out by v. d. Gabelentz in his Chinese grammars. He further distinguishes them by different sets of names, the one German, the other Latin (as "Thätigkeitswort" and "Verbum").

² This is, of course, a mere figure of speech; no conscious selection is thought of.

5 A compound idea may be and usually is expressed by two names, each one standing for one of its elements, as *puer parvus*, *valde peritus*, *edere volo*, *calere coepit*. But some languages accomplish the same result by phonetic modifications of one name, these modifications standing in lieu of the second name. So in Latin *puella* (**puer-la*), *peritissimus*, *esurio*, *calescit*. The origin of these modifications is a separate and often difficult problem. Some of them may be due to purely phonetic causes, such as the shifting of accent. This is practically certain in those vowel mutations (ablaut) which have later acquired tense signification, as "bind," "bound." Others have undoubtedly started life as independent names. But the unity of the compound idea, the coherence of its elements, was so great that it is reflected phonetically by a combination of the elements into one linguistic whole. All such coalescence is, as pointed out elsewhere (p. 183), the sign of particularly firm association between words frequently used in close succession and standing for one idea. It marks the reversal from analysis to synthesis, and is comparable to the casting of two letters on the same body, as is sometimes done, *e. g.*, in the case of "fi." Such is, for instance, the case in the Latin imperfects in *-bam*, in which the "ending" was originally the independent verb *bhūām*, "I grew." The difference between *ama-bam* and *amatus eram* lies simply in the degree of coherence of the two elements which make up these two "periphrastic" tenses, and in the absence of an independent *bam*, *bas*, *bat*, etc., outside of the compound forms; the third person singular of the perfect passive *amatu'st* forms a bridge between the two extremes. In vulgar English *-'ere* in "this-'ere," *-all* in the Southern "you-all" (plural to "you"), are on the verge of passing into

suffixes. In the same way vulgar English may yet develop from a peculiar connective use of "which"¹ a "prefix" *which-*, by which demonstrative pronouns are turned into relative pronouns, as "Mrs. Boffin *which*-her father's name was Henery;" though this is yet in its first stages.

In Japanese the "numeratives" appear very much like suffixes to the numerals. The Japanese, as the Chinese, does not join its numerals directly with the name of the object counted, but interposes between the two a "numeralive," or "auxiliary numeral," or "classifier," as it is sometimes called (as we may say in English, "one *loaf* of bread," "a hundred *head* of cattle;" hence the Pidgin English, "one piecey cannon," "six piecey cannon," for "one cannon," "six cannons"). The closeness of their union with the numeral is shown in the phonetic changes which result from the combination of numeral and numeralive, such as the change of "*ichi*" (numeral "one") to *ip-* in *ip-pai* (numeral "one" + numeralive "*hai*" = "cup"; as "*cha ip-pai*," "one cup of tea"). In all these cases the embryology of affixes and "agglutination" may be studied.

Still other modifications may, according to Bloomfield's plausible hypothesis,² be the result of the contamination of congeneric words. Whether all so-called root-determinatives belong here must remain doubtful, but the Vedic \sqrt{bhyas} , by the side of the $\sqrt{bhī}$, "to fear," may well owe its determinative to \sqrt{tras} , "tremble," as Modern High German *heischen* owes its *h-* to *heissen*.

So much is still doubtful regarding the origin of these

¹ Storm, *Engl. Philol.* (2d ed.), II, p. 802, 1039; the close similarity between the function of this "which" and the Hebrew אֲשֶׁר is noteworthy.

² Indogerm. Forsch., IV (1894), p. 32; cf. also *American Journal of Philol.*, XVI, p. 409.

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modifications that we can hardly do more than claim that combination of formerly independent elements (agglutination) was not the only factor, that many of the modifying elements received their whole semantic value from the company they kept (as, for instance, the "inchoative" suffix *-sc-* gained its signification from *crēscō*¹), a process somewhat similar to that which Ludwig² called "adaptation," and further that a certain amount of adaptation must be assumed for all formative elements, whether they started with an independent meaning or not.

- 6 The attitude of the speaker toward the utterance, namely, its reality, its probability, its desirability, what Apollonios Dyskolos called the *ψυχικὴ διάθεσις*,³ may be and often is expressed by separate sound complexes (words), such as *forsan*, *nimirum*, *scilicet*, *ut opinor*, *spero fore ut*, in Latin; "may be," "I guess, fancy, reckon," "probably," "hardly," etc., in English. But here again, as in the cases instanced in § 5, these attitudes may not be separately expressed, but indicated by a phonetic alteration of some other sentence element. In this case current grammatical terminology speaks of "modes." Individual languages differ, of course, in the number of attitudes which are expressed independently and those which lead a parasitic existence. At times both manners are combined: "tu quaeso scribe." The Indo-European languages, for instance, have developed no "negative verbal mode," but instead use a separate particle, *non*, *οὐ*, etc.; for the isolated

¹ Bloomfield, l. c.; Brugmann, Grundriss, II, p. 1036.

² A good summary of the theories of agglutination (Bopp's) and adaptation (Ludwig's) is given by Delbrück, Einleitung, chapter v.

³ Cf. Lange in Verhandl. d. 28ten Versammlung deutscher Philol., etc., 1873 (for 1872), p. 35; Schömann, Fleckeisen's Jahrbücher, 1869, part I, p. 13, 212, 390; Skrzeczka, *ibid.*, p. 161.

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Sanskrit and Greek¹ *a-* privative with verbs cannot be counted here. Other languages, like the Japanese, possess such a mode, as Japanese *ochita*, "I fell," *ochinakatta*, "I did not fall," *ochireba*, "if I fall," *ochinakereba*, "if I do not fall." (This negative mode is often improperly called "negative voice;" but it is clear that it does not form a contrast to active or passive voice, but to the affirmative, *i. e.*, indicative mode.)

The attitude of the speaker toward a single word finds very rarely formal expression, as when the so-called diminutive ending implies disparagement or endearment. The reason is that most words (excepting terms of reproach and endearment) are seldom used independently or isolated, and the attitude of the speaker is therefore sufficiently indicated by the context.

- 7 Finally the relation of the members of an utterance to each other calls for expression. How largely, however, and by what means these relations shall be expressed is a problem which different languages have solved differently. Sometimes they make use of independent sound-complexes, like "in," "to," "for," "because," "nevertheless," "if"; sometimes of phonetic modifications of the names, as *patris*, *domino*, *man's*, Japanese *kureba* ("if I come" from *kuru*, "I come"), *kuredo* or *kuredomo* ("though I come"); sometimes of a definite order of the names, as in English, "The father [subject] lost the boy [object];"² sometimes they combine all these means.
- 8 In regard to the formal expression of names, attitude, and relation, the structure of the Indo-European languages, more, perhaps, than that of many others,

¹ Brugmann, Griech. Gramm. (3d ed., in Iwan v. Müller's Handbuch), § 590, p. 529.

² Stöhr, Algebra der Grammatik, p. 66, calls this "tactic derivation."

exhibits a notable peculiarity, namely, polysynthesis. Its formative elements are usually freighted with meanings definitely grouped. The ending of *ama-rem* expresses, (1) the attitude of the speaker, (2) the person of the speaker, (3) the time relation; the *-i* in *domini* combines (1) gender, (2) number, (3) the "case" relation, (4) an implication of the nominal character of the word. In a similar way our suffixes often combine lexical and grammatical significations, as *-se-*, which marks a word as a verb while at the same time it adds the inchoative meaning. It is clear that the number of such possible combinations of two or more meanings is practically unlimited, at any rate that it far surpasses the number of actual formatives. The consequence is that certain combinations cannot be expressed by separate formatives and that often a formative carries more meaning than is wanted, for the reason that, a formative element with a simpler meaning being lacking, a formative with a complex meaning must be chosen.¹ For

¹ It is worth while to call attention here to a passage in Powell's *Evolution of Language* (First Annual Report, Smithsonian Inst., Bureau of Ethnology, 1881, p. 15) in which this polysynthesis is contrasted with analysis: "When the parts of speech are fully differentiated and the process of placement fully specialized, so that the order of sentence has its full significance, no useful purpose is subserved by inflection. All paradigmatic inflection requires thought. . . . When inflections are greatly multiplied as they are in the [American] Indian languages alike with Greek and Latin, the speaker is compelled in the choice of his words to think of a multiplicity of things which have no connection with that which he wishes to express." When he continues, "In the development of the English, as well as the French and German, linguistic evolution has not been in vain. Judged by these criteria the English stands alone in the highest rank," his words might be taken as a motto to Jespersen's *Progress in Language* (1894; an English adaptation of his *Studier over Engelske Kasus*, 1891) which is largely given over to an elaboration of the thesis that progress in language consists in the gradual simplification and final removal of inflection.

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instance: The Indo-European terminations for the so-called nominative case combine (1) an implication of the nominal character of the word to which they are appended, (2) its gender, (3) its number, and finally (4) an indication that in the sentence structure the word is intended to play the part of the subject. The ending is not so much that of a *casus nominativus* (a naming case) as of a *casus subjectivus*. A formative element which combines only the first three meanings does not exist. Yet there is need of it in those cases in which no sentence structure requiring a subject is attempted, *i. e.*, where there is no division into subject and predicate, where there is no judgment implied, but the process is simply one of multiple appellation. The sentence architecture which requires a subject so overshadows all other forms of expression in the Indo-European languages that these latter are commonly regarded as mere abortions of the former, and are forced into some semblance of (elliptic) sentence. But such explanations do not represent the naïve attitude toward these linguistic forms; they start from the prejudice that the "real," "complete," or "ideal" form of expression is the Indo-European sentence with its division and formal separation of subject and predicate and its peculiar elaboration of the verb.¹ Anna Ritter² begins one of her poems with these lines:

Ein Frauenkleid bestrahlt vom Feuerschein,
Ein sprühend Licht in steinbesetzten Ringen,
Und weisse Finger, die sich eng verschlingen.

No judgment, no sentence whatever. Simply the enumeration of a number of words with which definite

¹ Cf. the excellent discussion by Stöhr, *Algebra der Grammatik*, chapter xv, p. 93.

² *Gedichte* (4th ed., 1899), p. 147.

ideas are connected, a labelling of part after part of a complex picture, a series of "appellations." These cases are frequent in advertisements, where, under certain labels, such as For Sale, Wanted, and the like, asyntactic descriptions of the objects are given; for instance: "For Sale. A large house with garden, all modern improvements, sanitary plumbing, set tubs." All this can, of course, be converted into syntactic form, but as it stands and psychologically considered the series of juxtaposed words serves the same purpose as a picture. In modern poetry and prose many instances of this kind can be found; they seem to be absent in the literary remains of the classical languages, or at least excessively rare. I do not recall a single instance, excepting lists of names (as of recruits or citizens, *e. g.*, Cauer's *Del.* 2d ed. nos. 409 and 395); or superscriptions like *θεός, τύχα, θεοί*; or headings implying dates, as *πρότανις Μελίδωρος* (*Ibid.*, no. 430 C. 29). *χρόνος ὁ αὐτός* (*Ibid.*, no. 295, p. 201, line 72 = 173). Perhaps the reason is that the nominative endings (of which the modern languages have largely rid themselves) were too strongly charged with the "functional" meaning of the subject relation; that therefore they could not well appear outside of the sentence and without the retinue of a predicate (verb).

Another instance of such a dilemma is the much-discussed case of impersonal verbs.¹ For these Stöhr, in his exceedingly suggestive *Algebra der Grammatik* (1898), offers the simplest and, to me, most plausible explanation. The Indo-European and the Semitic languages have both

¹ An extensive literature has grown up around this question. Cf. especially Sigwart, *Die Impersonalien* (1888); Marty in a series of articles beginning in *Vierteljahrsschrift für wissenschaft. Philosophie*, VIII, p. 56; Wundt, *Logik* (2d ed.), I, p. 176; *Völkerpsychologie, Die Sprache*, II, p. 218.

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developed the characteristic grammatical device of the personal verb. The subject of the sentence, according to this structural plan, stands uniformly for something which or somebody who does something or suffers something. Whether action or suffering be involved is decided by two separate sets of formatives added to the verb, as, *pater* ^{*yama-t*} ~~*yama-tar*~~. The Indo-European and Semitic verb therefore always and necessarily implies a reference to somebody acting or suffering. "Semitic 'Sprachlogik' — and I think also 'Sprachbewusstsein,' recognizes no subjectless clauses; the inflection of the verb contains an implicit subject [*i. e.*, it implies a subject] — *what* subject, is either understood from the context or from common knowledge, and it must always be possible to substitute or rather to subjoin the corresponding explicit subject."¹ For those cases in which there is no actor but only an action, no one suffering but only a state, no formal provision is made. Here the compound meaning of these conjugational endings with its necessary implication of person and voice, and in the Semitic of gender also, interferes with the logic of the expression. True, of the "impersonal" verbs those referring to natural phenomena may have had originally a real subject, like Alcaeus' *ῥεῖ μὲν ὁ Ζεὺς*, Homer's *Ζεὺς ῥε*, or Arabic *maṭarat as-samā'u*, *ṭalaṭat as-samā'u*, "the sky rained, the sky snowed." But even in those cases there is no clear proof that the shorter *ῥεῖ* or *maṭarat* is really abbreviated. Even if they were, however, it may be assumed that the educated Roman of Augustus' time, when he said *pluit* no more felt Jupiter to be the subject than the modern German thinks of "das Feuer" or "das Haus" as subjects to "es brennt" or the Englishman thinks of any subject when he says "it rains."

¹ From a letter of President G. F. Moore, of Andover.

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When we use such a phrase, all we desire to express is our belief in the reality of an action and its time, irrespective of any agent. Such a thing is impossible in our language, inasmuch as our verbs cannot divest themselves of their personal endings. The so-called impersonal verbs are a compromise, as it were, between logic and grammar. The latter furnishes only forms which imply an active or passive subject. Logic demands the expression of a state without reference to a subject. By a compromise, grammar is satisfied by retaining formal reference to a subject, logic by the reduction of the semantic value of this implicit subject. This reduction amounts to annihilation, and thus only the outer shell of the subject survives. As in *pluit*, "it rains," subject and personal endings are emptied of their meaning, so in *pugnatur* the passive voice has undergone the same process. While a grammatical subject, like *pugna*, can be supplied here in some cases, other expressions, like *ventum erat*, *trepidatur*, cannot be treated in this way, which at best is only a desperate attempt to save the subject of the clause, like Arabic *maṭara 'l-maṭaru*, *ṭalaḡa 'l-ṭalḡu*, "the rain rained," "the snow snowed." The "impersonal verb" is the inevitable result of the requirement of a subject in the sentence structure and a symptom of its logical inefficiency under certain conditions. In languages which have no personal verb an impersonal construction is impossible. The Japanese *ame ga fuku* is literally "of (*ga*) rain (*ame*) [there is] a falling down (*fuku*)."

- 9 It is customary to distinguish between the meaning of sound-complexes which stand for names and the meaning of those devices by which the attitude of the speaker and the relations of members of an utterance to each other are indicated. Of the former we use the

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word "meaning," of the latter the word "function." The term "meaning" has thus acquired a narrower semantic sphere, being attached to the treatment of entire words and the domain of lexicography, while the term "function" has assumed a distinctly grammatical and syntactical value. It may, however, be questioned if such a distinction, which necessarily tends toward separation, is altogether advantageous. For if we speak, on the one hand, of the "meaning" of the word *rex*, and of the "changes of meaning" which *orare* has undergone, on the other hand of the "function" of the ending *-am* in *feram*, and the "changes of function" which this formative may have undergone, the difference in terms seems to imply a difference in the two objects discussed. This difference, however, is more apparent than real. For the whole difference is at bottom this, that in the former case we deal with the significance of independent linguistic units, in the latter case with that of significant parts of such units. That this is so can be seen from the fact that whenever the attitude of the speaker or the relation of members of an utterance is expressed by an independent unit, *i. e.*, by a separate word, we speak not of the "function" but of the "meaning" of such a word (*e. g.*, of the meaning of *forsitan*, "probably," etc., not of their function). As soon, however, as the attitude of the speaker or the relation of members of an utterance is expressed by some parasitic modification (as *man's*, *feram*), we speak of the "function" of this phonetic modification. Yet where is the essential difference? In truth, it is as much a "function" of the sound complex *r-e-x* to mean "king" as it is the "function" of "*quaeso*" (in *tu quaeso scribe*) to express desire, and the "function" of the *-e* (in *lege*) to express command. The

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difference is purely formal (external) and identical with the difference between English "he probably came" and the Japanese *kitarō* ("he probably came").

If this be true the semantic aspect of the linguistic expressions for names, attitudes, and relations must be essentially the same. The same forces which are active in one of these three classes are probably active in the others also. The study of the development of the expressions of the relation in which the members of an utterance stand to each other (Syntax, in Ries' sense) is not a separate department of grammatical study in the sense that the objects with which it deals are of a peculiar nature not found in other objects of linguistic study. The semantic aspect, like the morphological aspect, embraces all linguistic expressions, and it is virtually the same for all.

One result of this separation of "function" and "meaning" is clearly seen in the different methods which have been employed for the study and presentation of words as independent wholes and of parts of words or utterances. The study of the former (which sometimes has arrogated to itself the exclusive title of Semasiology or Semantics) has usually started from the form and discussed the various usages and meanings of which a given word-form has been capable during its existence in language. The epoch-making investigation of Heerdegen¹ dealing with the history of *orare* in Latin is typical for this branch of linguistic study, which arose in lexicography and received its strongest stimulus from it. The coincidence of Wölfflin's² preparatory work for the Latin Thesaurus in his Archiv and of the large

¹ Untersuchungen z. latein. Semasiologie (1875-81).

² In 1887 he read a paper before the 39th meeting of German philologists and schoolmasters at Zürich (Verhandlungen, etc., 1888, p. 61).

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number of contributions to word semantics is not due to chance. That such investigations cannot be carried on without constant reference to the causes which produced semantic changes goes without saying. In books like Darmesteter's *La vie des mots*,¹ Bréal's *Essai de Sémantique*,² and K. Schmidt's program *Die Gründe des Bedeutungswandels*,³ these have been conveniently summarized.⁴

Syntactical investigations, on the other hand, have largely started from the meaning, and, what is of even greater importance, the classification and much of the nomenclature are based upon meaning rather than form. The reasons for this cannot be traced here in detail.

¹ 5th ed., 1895. An English translation appeared in London, 1886. Cf. also part III of his *Cours d. Gramm. Histor. d. l. Lang. Franç.* (2d ed. edited by L. Sudre, 1898).

² The contents of previous articles are embodied in this book (1897). An English translation (with an introduction by Postgate) was published in 1900.

³ Programm d. Kgl. Realgymnasiums, Berlin, 1894.

⁴ A convenient select bibliography of works on word-semantics is found in the note to Paul's *Principien* (3d ed.), § 51, p. 66. The fullest psychological treatment is now given by Wundt, *Völkerpsychologie, Die Sprache*, II, 420-583. The work in word-semantics falls into three groups: (1) the lexicographical study of single words or word-families (*e. g.*, Heerdegen's study of *orare*, Liebig's dictionary of word genealogies for the German, *Die Wortfamilien d. lebenden hochdeutschen Sprache*, 1898 f. (2) The comparative study of concrete cases of semantic expression and development of the same idea in various languages. A first attempt [1844] by Freund, "Über die Idee einer allgemeinen sprachvergleichenden Lexicographie" in *Verhandl. d. 7ten Versamml. dent. Philol.*, etc., 1845, p. 69; cf. Abel's study of the terms for "love" in *Samml. gemeinverst. wissensch. Vorträge* hrsg. v. Virchow u. Holtzendorff, VII Serie, nos. 158 and 159 (1872), repeated in his *Linguistic Essays* (1882) and his *Sprachwissenschaftliche Abhandlungen* (1885). (3) The psychological study of the causes which lead to semantic change and the manner in which it takes place. (The first professed psychologist to discuss these was Rosenthal, *Die psychologischen Bedingungen des Bedeutungswandels der Wörter*, a dissertation, Leipzig, 1884.)

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One of them, and a strong one, was the purpose for which all syntax was originally intended, namely, to teach how a language should be spoken and written. From the standpoint of the speaker meaning precedes form. Syntax followed this order.

- 10 In the discussion of all semantic changes the logical aspect must be carefully kept separate from the psychological aspect. The opening paragraph of Paul's fourth chapter (in the second edition of his *Principien*, 1886; it has been greatly modified in the third edition, 1898) illustrates the former: "(The change in the meaning of a word) always consists in a widening or narrowing of the extent of its signification, to which corresponds a restriction or an enlargement of its contents. Only through a succession of enlargements and restrictions can the new meaning of a word become totally dissimilar to the old one." Such logical considerations are of great value in a preliminary arrangement of the material, but they do not help to throw light upon the actual process of change or the causes which led to it. To say that *sermo*, "talk," has a wider meaning than *sermo*, "sermon," does not explain either the how or the why of the change of the former to the latter. This applies with equal force to syntactical considerations and classifications. And yet the real solution of every semantic problem must be sought in the answers to the questions: In what manner and for what reason is the same form attached to different contents?

- 11 The investigation must therefore start with the nature of the contents with which linguistic forms are associated in order to serve as their symbols.

The psychical content of a sound series (word) is never simple but always more or less complex. Simple psychical elements do not find expression in language.

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Various senses contribute to our percept of an object. Memories of certain visual, olfactory, and auditory sensations enter into our idea of a horse. With them are associatively united actions and qualities which formed the predicates of judgments previously passed, of which "horse" was the subject. And finally, the perception of many objects is accompanied by a definite emotional state of either like or dislike. With all these are combined the motory sensations produced by the articulation of the word "horse," to which Stricker¹ first called attention.

- 12 Tobler,² Stern,³ and most recently Erdmann⁴ have given due prominence to the lexicographical and stylistic

¹ Stricker Studien über die Sprachvorstellungen (1880) : later literature on the problem of "internal speech" is given by H. Aubert, in Zt. f. Psych. u. Phys. d. Sinnesorgane, I (1890), p. 52. Cf. especially Dodge, Die motorischen Wortvorstellungen (1896, being the eighth vol. of Abhandl. z. Philosophie, hrsg. v. B. Erdmann) and J. Cohn, in Zt. f. Psych. u. Physiol. d. Sinnesorg., XV (1897), p. 161.

² Aesthetisches und Ethisches im Sprachgebrauch, Zt. f. Völkerpsych. u. Sprachwiss., VI, p. 385.

³ Die Analogie im volksthümlichen Denken (1893), p. 117: "Die Vorstellungen geben die Objecte, an denen die Gefühle sich bethätigen . . . Die Vorstellungen, welche auf diese Weise einen Gefühlston erhalten, gehen mit diesem Gefühle eine Verbindung ein, so fest, so innig, dass sie leicht für ein unlösbares Ganzes gehalten werden . . . Schliesslich kann jener psychische Complex eine derartige Festigkeit erlangen, dass der Mensch überhaupt nicht mehr im Stande ist, die Gegenstände abgetrennt von den Gefühlen zu denken. Die subjective Verbindung verwandelt sich dann im Denken zu einer objectiven Kategorie, das *Gefühlsurtheil* wird zum *Werthurtheil*."

⁴ Die Bedeutung des Wortes (1901). In the introduction to this very interesting and suggestive book he claims priority for the term "Gefühlswert der Worte." P. 78 ff. he distinguishes between "*begrifflicher Inhalt*" (intellectual content) and "*Gesamtbedeutung*" (total significance) of a word. All parts of the latter which lie outside the "*begriffliche Inhalt*" are "*Nebensinn*" (by which he understands "die Begleit- oder Nebenvorstellungen, die das Wort gewohnheitsmässig bei uns auslöst") and "*Gefühlswert*."

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importance of the emotional elements in words. Sometimes these elements form only an undercurrent, as it were, to the dominant intellectual elements, but sometimes they completely dwarf them, and the character of a word may become almost wholly emotional.

There are three possible sources of these emotional elements. They may be due to the phonetic character of a word (sounds or intonation), to external associations, and to the object for which the word stands.

A sequence of speech-sounds, like a sequence of musical notes, may produce certain emotional states. "Nul Français," says Bourdon,¹ "n'hésiterait à trouver caressants les mots comme *jaja*, *zaza*, *vava*," though his explanation of this effect ("dans lesquels se produit un frôlement caressant de l'air contre la langue, le palais, ou les lèvres") is hardly adequate. In general, it is very difficult to say in how far the phonetic character of a word is the direct source of its emotional quality. There is in all these cases the possibility of indirect associative influences. So that the caressing effect of *jaja* may possibly not be due directly to its phonetic character, but to the fact that certain associations give it such an emotional flavor.

The emotional effect produced by external associations is due to the context within which the word is habitually used, and to the person by whom it is used. Of two words identical in their intellectual elements one may be "poetical," the other "prosaic." "Aeschylus and Euripides each composed the same iambic line," says Aristotle in the *Poetics* (xxii. 7), "but the alteration of a single word by Euripides, who employed the rarer term instead of the ordinary one, makes one verse appear beautiful and the other trivial.

¹ *L'Expression des Émotions*, etc. (1892), p. 38.

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Aeschylus, in his *Philoctetes*, says: φαγέδαινα <δ> ἥ μου σάρκας ἐσθίει ποδός. Euripides substitutes *θoinâtai* for ἐσθίει. Again in the line νῦν δὲ μ' ἐὼν ὀλίγος τε καὶ οὐτιδανὸς καὶ ἀεικής (*Odyss.*, ix. 515) the difference will be felt if we substitute the common words (κύρια): νῦν δὲ μ' ἐὼν μικρὸς τε καὶ ἀσθενικὸς καὶ ἀειδής; or if for the line δίφρον [τ'] ἀεικέλιον καταθεῖς ὀλίγην τε τράπεζαν (*Odyss.*, xx. 259) we read δίφρον μοχθηρὸν καταθεῖς μικράν τε τράπεζαν; or if for ἡῖόνες βοῶσιν (*Il.*, xvii. 265) we substitute ἡῖόνες κράζουσιν."¹ Now in all these cases there is nothing inherent in the words which makes them either poetical or prosaic. A logical definition of *θoinâtai* and ἐσθίει would show them to be identical, and the metaphor implying a personification of φαγέδαινα would not be destroyed by the use of the latter. Why, then, does their stylistic sphere differ? For the simple reason that the former, having been used by older poets and being absent from the colloquial vocabulary, suggests poetry; *θoinâtai* has become poetical because it had been pre-empted by the poets, just as ἐσθίει was prosaic because it was used in every-day speech. The rarity of a word is only a secondary consideration. That it is the context which determines the emotional value in such cases may be seen from the fact that one and the same word may have at one time an elevated, at another a low meaning, *e. g.*, the German *Weib* is either poetical or low, according to its setting, and is, for this reason, eliminated from the vocabulary of ordinary colloquial speech.

The following quotation from Helene Böhlau's *Rathsmädelgeschichten*² will illustrate how the emotional quality of the object is transferred³ to the word

¹ Butcher's translation.

² P. 230.

³ Another interesting case is mentioned by Simmel, *Zt. f. Völkerpsych. u. Sprachwiss.*, XX (1890), p. 28: Wieviel mehr der Brautstand der weibli-

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and continues as an important semantic element of the latter. Speaking of her grandmother, who went under the pet name of "Gomelchen," she says: "Der Name Gomelchen ist der alten Frau . . . wie eine weiche Federflocke angefliegen und an ihr haften geblieben. Aus Grossmama wurde Gomama, aus Gomama Gomo, — Gomelchen. Von den Lippen ihres ältesten Enkelkindes hat sie ihn zuerst gehört, es . . . war Name und Schmeichelname zugleich. . . . Ich bleibe bei dem Namen und meine es sei genug zu sagen und immer wieder zu sagen, dass sie Gomelchen heisst, — und vergesse ganz, dass dieser Name für andere gar keinen Klang hat, und das nicht sagt, was er mir sagt. Mir selbst ist es, wenn ich ihn mir vorspreche, als glitte eine weiche Welle über mein Herz hin, als würde es behaglicher, wärmer im Zimmer; einen zarten Duft von Thee und schöner Sahne und Reseda und Hyacinthen meine ich zu spüren, einen Duft, der die Seele mit Wehmuth und Erinnerung erfüllt." In this case the word has evidently lost its intellectual value almost completely, and similar cases where the emotional element wholly or greatly outweighs the intellectual contents are not rare. The vituperative, libellous, and slanderous force of many oaths, curses, and similar phrases is often purely emotional, and their logical analysis would show no trace of such meaning. But apart from these, many words in common use are of a prevaillingly emotional nature. "And then Jack's nose is quite as good in its way as Mr. Cartwright's," says a character in a recent novel;¹ "of course, it is n't

chen als der männlichen Natur adaequat ist, zeigt sich auch persönlich daran, dass das Wort "Brant" uns so wundervoll poetisch und aussprechend klingt, während "Bräutigam" hässlich und in feineren Kreisen fast perhorresciert ist.

¹ T. Fowler, *The Farringdons*, p. 385.

clerical. . . . I should call it an 'unsectarian' nose. I don't know exactly what 'unsectarian' means, but I think it is something rather daring and wicked and attractive." In a similar way the intellectual content of a great number of phrases and often used terms is for many very indistinct, while their emotional elements are clear and forceful. Such terms as "patriotic," "socialistic," "anarchistic," "American" and "un-American," "Little Englander," do not convey any definite logical meaning to many people, but they are so highly charged with emotional elements that they carry with them stronger conviction for some than an intellectual argument. For oratory, the fact that the intellectual and emotional elements are so closely and inseparably interlaced is of great advantage, because it permits the orator to sway his audience by a skilful choice of words affecting their emotions; but for a calm and logical discussion it is of the greatest disadvantage, because the merely injudicious choice of words often prejudices a case and the emotions stirred up by them rise like a veil between the object and the observer. The ethical valuation of the object is thus predetermined by the name applied to it,¹ a fact which popular philosophy expresses by the proverb: Give a dog a bad name. The exact opposite is the attempt to raise the ethical status of a doubtful object or quality by the application of a noble term, such as Thucydides alludes to (iii. 82. 4) in the words *καὶ τὴν εἰωθυίαν ἀξίωσιν τῶν ὀνομάτων ἐς τὰ ἔργα ἀντήλλαξαν τῇ δικαιοῦσει*. *τόλμα μὲν γὰρ ἀλόγιστος ἀνδρία φιλέταιρος ἐνομίσθη, μέλλησις δὲ προμηθῆς δειλία εὐπρεπής*, and Lysias (*Contra Era-*

¹ With a slight change in a passage of Epictetus (*Encheir.*, ch. v, substituting *λόγοι* for *δόγματα*), one might say: *παράττει τοὺς ἀνθρώπους οὐ τὰ πράγματα ἀλλὰ περὶ τῶν πραγμάτων λόγοι*.

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tosth., § 78) in his characterization of Theramenes, τῷ καλλίστῳ ὀνόματι χρώμενος δεινοτάτων ἔργων διδάσκαλος καταστάς. In a similar way one of Lessing's dramatic characters complains of the grossness of the German expression for *corriger la fortune*.¹ One of the reasons why a strictly logical argument is so difficult to present and to follow out is that it requires a continual effort to dissociate elements which in the everyday use of words are united.

How important the close union of intellectual and emotional elements in words is for stylistic and literary purposes one quotation from Doumic's discussion² of Loti's style may suffice to show: "We are sometimes tempted to believe that the art of description has reached such a point, thanks to the efforts of the picturesque writers, that there is no further progress to be made. This is doubtless true so far as rendering the exact outline of objects, their coloring and relief, is concerned. In this respect Loti has not improved on his predecessors. . . . But what no one had achieved before was to make visible that which had no exact outline, no form even, no definite color, but was made up of uncertain harmonies and indefinite shades. [Such as the description of a night in equatorial seas, *Mon frère Yves*, p. 73; or the description of the light in Iceland, where Loti pictures an atmosphere that is neither night nor day, *Pêcheur d'Islande*, p. 11.] What we should call this is a marvellous talent for evocation. Loti does not, like so many writers, feel any necessity for torturing the language; he uses only everyday words. But these words as used by him take on a value we did not

¹ Cf. Erdmann, *die Bedeutung des Wortes* (1900), p. 120.

² *Contemporary French Novelists* (English trans. by Mary Frost), p. 272 f.

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know they possessed; *they awaken sensations that linger deeply within us.*" These last words undoubtedly give the real source of the peculiar effect of Loti's style. He does not directly describe, but he pictures indirectly by suggesting certain emotional states through a skilful selection and arrangement of his verbal material, and thus dimly placing before our mind the memory of certain sense-impressions which are usually combined with such emotional states. Quite a different, comical and grotesque effect can be produced by the same means when words are used with an intentional disregard for their emotional value. A great deal of artificial, secondary, and "literary" slang rests upon this device.

The emotional element greatly influences the fate of some words.¹ The taboo on them being, curiously enough, even stricter than on the objects which they designate, reverence and prudery alike constantly tend to deplete the vocabulary by proscribing the use of certain words. Their places are filled with words as yet unhallowed (cf. the use of *parabola* for *verbum*, which

¹ The effect of taboo on the lexicon of savage tribes deserves further investigation. Dobrizhoffer, in his *Historia de Abiponibus* (1784), II, p. 199, makes the following interesting remarks: "Novis Abiponensem linguam difficultatibus implicat mos barbarorum ridiculus vocabula universae Nationi communia antiquandi identidem, novaque illis substituendi. Ritus funebris istius consuetudinis sunt origo. Nolunt Abipones superesse quidpiam, quod vita functorum memoriam refricaret. Hinc vocabula appellativa, quæ cum mortuorum nominibus aliquam referunt affinitatem, mox aboleantur. In S. Hieronymi oppido tabe confectus est Abipon juvenis, cui nomen *Hanà* fuit. Eadem vox *acum*, vel *spinam* significaverat id temporis. Sed mox a morte adolescentis vox *Hanà* abrogata est, illique substituta: *Nichirencatè*. Primis, quos Abipones inter egeram, annis quotidiana fuit interrogatio: *Hegmalkam Kahamátek*? Quando erit boum occisio? Ast ob Abiponis alicujus obitum vox *Kahamátek* interdicta est & illius loco: *Hegmalkam négerkatà* dicere, præconis voce jubebantur omnes."

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had come to mean *verbum domini*) or untainted (cf. the use of the general term *mediator* for the particular *leno*, or of the litotes *infirmitas* for *morbus*, or of a foreign term like *courtesan*, German *Maitresse*, or even of a noble term for the ignoble object, as *amica* for *concubina*). In these cases of euphemism the new term will usually share the fate of its predecessor, and after a certain time also be supplanted. For the student of the history of civilization considerable interest is attached to the variations of the emotional element in different periods and among different nations. Schmidt¹ has called attention to the interesting revaluation ("Umwerthung") of the Greek *ταπεινός*, which, from being a term of contempt, was elevated by Christian ethics to that of a virtue without change of the intellectual contents. The use of "bug" is permissible in America, but tabooed in England (on account of the restricted sense of "bedbug"), just as "höllisch" passes unchallenged in Germany, while its equivalent in English would be highly offensive.

- 13 A unification of the heterogeneous mass described in § 11 is brought about by subordinating all elements to one dominant element. The contents of our words may be likened to musical tones which also consist of a complex of simple tones in definite gradation of prominence and the pitch of which is determined by the dominant partial. That the relation of the elements to each other should be the same in all individuals or even in the same individual at different times cannot be expected. The importance which the different senses have in the formation of percepts differs with sufficient regularity to permit the establishment of definite "types

¹ Die Gründe d. Bedeutungswandels (Progr. d. kgl. Realgymnas. z. Berlin, 1894), p. 12.

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of imagination," such as visual, motory, auditory.¹ In the same manner the degree of prominence of all other elements of a percept, idea, or concept varies. The psychical contents of words and word-elements are therefore not stationary but by their very nature variable. As far as we can now observe, a name is connected with the object named by a bond of external association only. A name is not in any way felt to be descriptive of the object, any more than a wardrobe check is descriptive of the coat for which it calls.

I am not speaking here of the original process of naming. This is a separate and distinct problem. Whether, for instance, the Indo-Europeans, according to current theory, gave the moon its name because it measured, or the Italic nations called the earth **tersa* because it was dry, or whether the process was exactly the reverse, is of no importance for the future development of these words, for the Greeks did not feel *μέτρον* to mean the "measurer," nor did the Romans think of *terra* as "the dry one." It may, however, be noted that the current theory of secondary or descriptive naming of objects after dominant qualities was probably by no means so universal as is often supposed. To me it would seem much more likely that a sound complex first attached itself to the compound percept of an object, and that only later it came to signify also a prominent element of this compound; so that the Indo-European word for "horse" did not originally mean "swift" and was then used for the "horse," but that it originally meant "horse," and the meaning "swift" was a later development, the quality being expressed by the word

¹ See a good historical sketch of investigations along this line in Lay's *Mental Imagery*, *Psycholog. Review*, Supplement, vol. II, no. 3 (= whole no. 7), May, 1898, p. 47.

for the object which possessed the quality in a marked degree.¹

However this may be, a word does not really become a symbol for an idea until it ceases to describe, and the link between sound and idea, phonetic form and psychological content, has become purely external and mechanical, in brief, until all etymology of the word is forgotten while the word is being used. This, of course, does not mean that reflection may not bring its etymology to light again; often the untrained and naïve user of a word may discover it; but in doing so he makes the word an object of his investigation, while in the employment of words in actual speech attention is directed to their contents alone, not to the connective link by which form and meaning are joined.

This is the reason why etymology is the weakest and most unreliable staff upon which the lexicographer can lean. The interpretation and definition of words and phrases form a large part of jurisprudence, and our law has developed a valuable canon of rules for interpretation of ambiguous words and phrases.² Quite properly etymological assistance is almost entirely dispensed with. Where a word is not expressly defined by the framer of the statute, *i. e.*, where its sphere is not circumscribed

¹ Cf. Stern, *Die Analogie im volksthümlichen Denken* (1893), p. 21: "Es besteht beim naiven Menschen die Neigung in Schilderungen nicht die einzelnen Merkmale des zu schildernden Gegenstandes aufzuzählen, sondern ihn in Analogie mit andren Gegenständen zu bringen, mit denen er die Merkmale (*i. e.*, a dominant element) gemeinsam hat. So sagte ein kleiner Franzose . . . : 'Entrez, messieurs, et regardez ce monstre, il a une tête comme une citrouille, des cheveux comme des carottes, et des doigts comme une araignée.'" Cf. also the change of proper names to appellatives, Wackernagel, *Germania*, V, p. 317; G. Krüger, *Eigennamen als Gattungsnamen*, Programm d. kgl. Realgymnas. zu Berlin, 1891; O. Schultz, *Zt. f. roman. Philol.*, XVIII (1894), p. 130.

² Cf., *e. g.*, *American and English Law Encyclopædia*, XXIII (1893), p. 296 f.

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by a number of other words,¹ its meaning must be gathered from the context, "*noscitur a sociis*," either by confronting all the passages in which the word occurs in a variety of settings, or by confronting similarly worded passages, of which some contain the dubious word, some a better known synonym. In this sense Pischel and Geldner² have argued in favor of a "philological" as against a "linguistic" method in lexicography. The chief defect of the latter method lies in the fact that the semantic value of the primitive roots is no more empirical than their form, if anything less so. For it is the result of a logical operation by which the particular meanings of really existing words have been so fused that their common elements have been retained, while the elements in which they differed have been discarded. By a summation of the common elements of a number of phonetically related words the "root meaning" is found, much in the same way in which we form general concepts out of particular percepts. Hence the vague, general, and conceptual meaning of these "roots."³

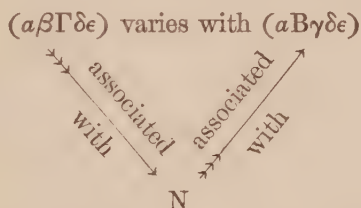
¹ And legal interpretation very properly distinguishes between contemporary and later definitions. "Courts, in construing or interpreting a statute, give much weight to the interpretation put upon it at the time of its enactment, . . . and especially is this true, where the statute is an ancient one. . . . But further, the meaning publicly given by contemporary or long professional usage is presumed to be the true one, *even where the language has etymologically or popularly a different meaning*. Those who lived at or near the time when it was passed would naturally be supposed to be better acquainted than their descendants with . . . the sense then attached to legislative expressions," *Americ. and Engl. Encyclopædia of Law*, XXIII (1893), p. 339-340; a distinction which Oldenberg, *Zeitsch. d. deut. morgenl. Ges.*, liv, p. 599, has lately emphasized with reference to the "philological" interpretation of the Veda, where the interval of time separating the commentators from the *rishis* has sometimes been lost sight of.

² In their *Vedische Studien* (1888 f.).

³ Cf. above (p. 175) the quotation from Curtius on the concrete meaning of early roots.

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- 14 The compound percept, as we saw in the previous paragraph, is of an unstable nature, because the degree of the prominence of its elements is not fixed and its dominant element is not invariably the same. Without any loss or gain of elements a percept may oscillate. But these phases of the same percept usually are similar enough to be denoted by the same symbol. And thus the same word may assume various meanings, *i. e.*, be associated with a number of rather closely associated percepts, ideas, or concepts. If the elements of a synthetic percept are indicated by Greek letters, the dominant element by a capital, and the parenthesis indicates their union into one whole, while *N* stands for the phonetic symbol, the semantic change which is due to this oscillation may be formulated thus:—



To these oscillations are due the “shades” in the meanings of words, phrases, or construction. The ending *-am* in *feram*, for instance, expresses a psychical compound which is composed of the elements of futurity, probability, desire, etc. Any one of these may, in a given case, be the dominant element, and *feram*, therefore, may be the “future” or the “subjunctive.” To say that either of these meanings is “derived” from the other would not correctly describe the mental process. They are affiliated because of the identity of the elements of which they are composed. They differ because of

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the difference in the dominant element. The same is true of the two meanings of German "Lust," namely, (1) "pleasurable feeling," as in "Lust an etwas haben" (cf. Lustgefühl, lustig), and (2) "desire," as in "Lust haben zu etwas" (cf. Gelüst). For pleasure and desire form one whole, in which now the former element is stronger, now the latter. Similarly in the English "fear" the elements of anticipation and dread are combined; of these the latter usually, but not necessarily, predominates, as will appear from the following anecdote related by R. Harris:¹ "In a case of murder the main evidence against the accused was the dying declaration of the victim which, made in his absence, could only be given in evidence after proof that it was made 'with full consciousness of approaching death.' The doctor was thus examined by the prosecuting Junior: Q. 'Did she fear death?' A. 'No.' The Junior looked at his brief, then at his witness. The latter was perfectly cool and knew well enough what answer was required. There was no motion, however, of assistance. The ingenious young counsel, however, repeated the question: 'Did she fear death?' A. 'O dear, no, not at all.' The Judge: 'You cannot put in the statement; that will do, doctor. And you cannot find a verdict of guilty, gentlemen; it must be manslaughter.'" Greek ἐλπίζειν is a parallel case.

Where, however, the difference produced by such variation of the dominant element is considered of sufficient importance it receives formal expression. So while *-am* in *feram* expresses at one time futurity, at another desire, the termination of the second and third persons distinguishes formally between the future *feres*, *feret*, and the subjunctive *feras*, *ferat*. In the same

¹ Hints on Advocacy (9th ed.), 1892, p. 222.

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way the dominant element, viz., command, in the following subjunctives, *sis*, *scribas*, *advortas*, is definitely fixed by the addition of the auxiliaries *fac*, *vide*, *volo*: *Fac fidelis sis fideli* (Plaut. Capt. 439); *Adde et scribas vide plane et probe* (Asin. 755); *Ergo animum advortas volo* (Capt. 383).

In sentences the dominant element is usually indicated either by position or by accent or by some other deictic device, such as "*it is I who go*," "*as for me, I shall go*." But inasmuch as position and accentuation are not absolutely free, the dominant element must sometimes remain unexpressed. This is also often the case where, owing to the polysynthetic character of the formative elements in the Indo-European languages, a separation of the dominant element from the rest is not possible, as in the case of negative sentences like "*Non videbo*," where the negative may refer to the tense ("*I shall not see, because I have already seen*"), to the voice ("*Instead of seeing myself, I am seen*"), to the stem ("*I shall not see, but I may hear*"), or to the person ("*It is not I who shall see, but some one else*"), in which case the emphatic pronoun might be represented by *ego*.¹

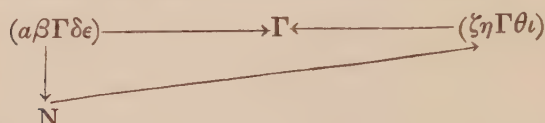
Here may find a place those cases in which the whole semantic sphere is, as it were, usurped by one dominating element, while all subsidiary elements are completely disregarded. This is the reason why a term may be retained for an object or action, though, in the course of time, both may have changed completely except for one element.² So in the term "*fee*," originally equal to cattle, which among many others at a given period frequently contained the element of "*means of payment*,"

¹ Stöhr, *Algebra d. Grammatik*, p. 133.

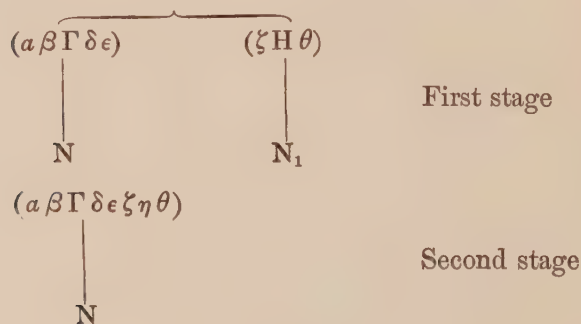
² Examples are given by Schmidt, *Die Gründe des Bedeutungswandels*. (Progr. kgl. Realgymn. J. Berlin), p. 8 f.

this element so completely dominated that the term could be applied to any kind of payment (cf. the Latin *pecu* and *pecunia*); the same is true of phrases like *pendere pecuniam* when used of coined money, "to wind up" when used of a watch.

The following diagram illustrates the process:



- 15 Whenever adjacent concepts are condensed into one, the newly created concept contains a larger number of elements than either of the two original concepts, and its sphere is therefore narrower. This fusion of concepts finds its linguistic expression in two ways, namely, (1) by the reduction, and (2) by the complete loss of one of the names of either concept. The former process leads to agglutinative derivation, *i. e.*, a modification of the phonetic form accompanies the change in meaning. In the latter case the change of meaning is not externally indicated. It is this latter case, where one name absorbs the significance of another name, which concerns us here. Its graphic formula would be as follows:



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In this manner *sermo*, "talk," absorbs the meaning of *religiosus* (in the phrase "*sermo religiosus*") and thus comes to mean "sermon." *Dolus*, "smartness," absorbs the meaning of *malus* (in *dolus malus*), and many *voces ambiguae* have thus definitely settled on a final meaning. Whether this be for better or worse is a mere question of chance. *Successus*, "consequence," through *successus bonus*, has been turned *in bonam partem*, *venenum*, "poison," *in malam partem* through *venenum malum*. There is, of course, no tendency toward ennobling or degrading of words in language.¹ The process is really one of abbreviation, comparable to the phonetic abbreviation² by which 'bus stands for omnibus, cab for cabriolet. This process of abbreviation often forms the second step when by composition or juxtaposition of two old words a new term has been created for a new object. Among the various ways in which such want of a name may be supplied (such as the adoption of foreign words, the rare coining of an entirely new word, or the modification of an old word by the addition of affixes) the compounding of a new word out of old material is one of the most frequent devices. So the German "*Feder*" ("feather," then "goose-quill") was further determined by "*Stahl*," and thus furnished the name for the newly invented steel pen (cf. also terms like "*Seehund*," etc.). Often, however, these compounds are again simplified so that the remaining member carries the meaning of the whole compound. This abbreviation is most common when

¹ Bechstein, *Germania*, VIII (1863), p. 330, first alluded to such a tendency. The real reason for the deterioration of word-material is "euphemism." A word becoming tainted by its connection with an "unspeakable" object is supplanted by another which soon shares its fate.

² Cf. Nyrop, *Brakylogi*, in *Nordisk Tidsskr. f. Filol.*, III. R., VI (1897), p. 45.

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the compound would have to be repeated in the same context, as may be seen from the following quotations. Euripides' (Bacch., 1053-4)

λαβὼν γὰρ ἐλάτης οὐράμιον ἄκρον κλάδον
κατήγεν, ἤγεν, ἤγεν εἰς μέλαν πέδον

is a typical example of the continuation of a compound verb by the simplex which is common in the tragedians and of which Elmsley, in his note to *Medea*, 1219, has collected many cases. The Law of Gortyn (I. 40) resumes ἀποδεικσάτω by δείσσε; the commentator of the *Atharva Prātiṣākhya* (IV. 101) refers to *vedādhyayana* by *veda*. Modern examples are plentiful. Sybel¹ writes: "Er (Napoleon) liess sich auf Unterhandlung und Waffenstillstand ein." Then, after a passage of forty-one words, he continues: "Der letzte Termin des Stillstandes war der 10. August." W. v. Hillern, in one of her novels,² has: "Das Hochamt begann; solch ein Amt war nicht gehalten worden, so lange man denken konnte;" G. Hauptmann, in his play *College Crampton* (p. 29): "Hat mir zu schaffen genug gemacht, dieses Dickköpfchen. Nun wollen wir es aber doch gleich kriegen, dieses Köpfchen." A whole series of such abbreviations occurs in one of Mr. Dunne's dialogues (between the tailor and l'Aiglon):³ "'Wan or two hip pockets?' says he (the tailor). 'Two hips,' says young Napoleon. . . . 'Wan or two inside pockets?' says the tailor. 'Two insides.' 'Hankerchief pocket?' 'Wan hankerchief.'" In this manner a word may permanently acquire the meaning which

¹ *Kleine historische Schriften*, I² (1880), p. 336.

² *Höher als die Kirche*, chapter v.

³ Mr. Dooley's *Philosophy* (1900), p. 253.

originally belonged to the compound only, as Doric *κάσις*¹ that of *κασιγνητος*, *la première* that of *la représentation première*, "Pfirsih" (= *persicum*) that of *malum persicum* (= peach). A word like "canard" carries the meaning of a whole phrase ("vendre à quelqu'un un canard à moitié" [instead of a whole one]), hence the abbreviated "vendre un canard" = "to cheat," and "canard" = "a lie." How thoroughly the individuality of the separate words has been lost and their meanings have been merged into one whole, can be seen in those cases in which that element which was originally most significant is later lost. A well-known case is that of the French negatives "pas" and "point" (Latin "passum" and "punctum") which carry the meaning of the phrases *ne passum*, *ne punctum*. It is clear that the *whole* phrase must have been felt to be negative to allow a loss of the really important *ne*, just as the *whole* compound "flesh-meat" (*flêsc-mete*), without regard to its elements, must have been felt to mean "meat" to permit the loss of the real determinant "flesh." The psychological process is first juxtaposition, then synthesis and complete fusion of the contents of the two words, resulting in a complete loss of their semantic individuality and finally in formal abbreviation, because a single term is sufficient for the unified compound idea.

This consolidation of the originally separate contents of two words sometimes leads to a redistribution of the elements making up the larger compound idea, a redistribution by which the semantic value of words may undergo considerable change. In the English phrase "an awful crime," "awful" thus acquires the force of a mere intensifier, a rôle in which it appears in the phrase "awfully pretty," which, logically considered, is incon-

¹ Hoffmann, *Griech. Dial.*, I, p. 171.

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gruous. So the German "scheusslich liebenswürdig," "höllisch verliebt."¹

Very similar to this is the influence of the surroundings by which Greek *ei* or the archaic German *so* gained their hypothetical meaning. And it may be laid down as a general rule that the significance of every concrete case form, mode form, or tense form depends to a considerable degree on their setting and on the meaning of the word to which case, mode, or tense endings have been added. So that it is really incorrect to speak of the meaning of the ablative ending (*e. g.*, *-o*) or of the subjunctive ending (*e. g.*, *-am*), as if all the meaning rested upon them. We ought to speak of the meaning of the ablative ending *-o* with such and such nouns, and of the subjunctive ending *-am* of such and such verbs. Even the person, in the latter case, would be an important semantic element.

- 16 Of equal importance is the dissolution of percepts, *i. e.*, the removal of one or more elements from the complex percept. In psychology this is of great importance for the formation of concepts and general ideas which arise from a fusion of many percepts and particular ideas accompanied by a fading of the dissimilar elements, as when many particular trees are blended into the concept "tree." A preliminary step to this is the formation of perceptual judgments by which qualities, actions, and things are first definitely separated,² a separation which becomes permanent by associating each abstraction with a definite phonetic symbol. Hence the im-

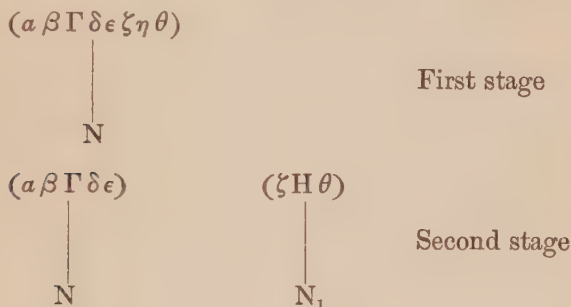
¹ For the English, cf. Stoffel, *Intensives and Downtoners* (1901, vol. I of *Anglistische Forschungen*, hrsg. v. Hoops), p. 119.

² Cf. Jerusalem, *Urtheilsfunction* (1895), p. 109 f. Very similarly H. Rickert, *Zur Lehre von der Definition*, p. 44, regards "Begriffe als Knotenpunkte in einem Netz von Urtheilen" (cf. *Göttinger Gel. Anz.* [1890], I p. 53.)

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portance of language for conceptual thinking, which has led some to identify the two and disclaim the possibility of any thinking without language.¹

The linguistic process of dissociating part of the elements of a complex percept is to supply these elements with a separate name; thus the meaning of the original name would be lightened and its scope enlarged, as represented in the following diagram:



¹ So especially Max Müller, on the philological side. Brahmanical psychology holds the same theory, cf. Çatap. Bräh., VIII, 1. 2. 7: "The mind (*mati*), indeed, is speech, for by means of speech this whole universe here thinketh." Perceptual thinking may be carried on without words, as is seen in aphasic patients. A game of football, a journey, a stage presentation may be thought over without linguistic symbols; the memory of the direct sense-impressions is sufficient. But all thinking which lacks the framework of direct sense-impressions (*viz.*, abstract, conceptual thinking) requires the vicarious presence of acoustic or visual or tactile symbols to support thought, and in this sense Leibnitz' "*si characteres abessent nunquam quidquam distincte cogitaremus neque rationarem*" is true. Prantl, *Geschichte d. Logik*, I, p. 403, credits the Epicureans (Sext. *Empir. adv. mathem.*, VII, 195; *Diog. Laert.*, X, 29) with having been the first "in der Wortbildung die zur Entstehung des Begriffes erforderliche Festigkeit zu erblicken." Much perceptual thinking, however, is now also carried on in words rather than in images, by a kind of abbreviation of associations (cf. Stanley, *Language and Image*, *Psych. Rev.*, IV (1897), p. 67; *Zt. f. Psych. u. Physiol. d. Sinnesorgane*, XVII, p. 302). Cf. on the whole question: Pershing, *The Disorders of Speech in Twentieth Century Practice of Medicine*, X (1897), p. 769; Stout, *Thought and*

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It would seem that in order to break up a compound percept in this manner it is necessary that the members which are finally dissociated shall have gained a prominence which interferes with the unity of the original percept. This unity, we saw, presupposes that one element shall be dominant, all the rest subordinate. As soon, therefore, as a second element becomes unduly prominent the unity is disturbed, as the phonetic unity of a compound would be broken, if two equally strong accents were to fall on both members (cf. "bláck bírd" and "bláck-bírd"). Syntactically this process of analysis can be easily illustrated. In the so-called inflected forms, *amavi*, *patri*, *horto*, the single phonetic form stands for a unified idea in which the action or thing plays the dominant rôle, while person and case relation, as subordinate parts of this whole, are expressed by simple modifications of the name which symbolizes the dominant element. In passing from the Latin to the Romance languages these modifications gave way to independent names. It is sometimes supposed that the phonetic decay, the obliteration of the distinctive forms of the endings, was the cause which led to this. It may, however, be submitted that this phonetic decay of case endings, far from being the cause of the analytical structure of the Romance declension and conjugation, was rather its result. The relations which these endings indicated first became mentally so prominent that the unity of the old percept was broken. Their mental independence was followed on the linguistic side by providing them with a separate name (cf. *g.* the Language, in *Mind*, XVI (1891), p. 181; Wundt, *Die Sprache und das Denken*, in his *Essays* (1885), p. 244; and especially Erdmann, "Die psychol. Grundlagen der Beziehung zwischen Sprechen und Denken," in *Archiv f. systematische Philosophie*, II (1896), p. 355; III (1897), p. 31. 150.

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preposition *de* or *ad*), and finally, the inflected part of the forms *patri*, *patris*, *patrem* ceased to resist phonetic decay.¹ By a similar process of emptying, particular verbs and nouns must have been converted into general ones. It is generally agreed that the development of general ideas is a later step, and that conceptual thinking marks an advancing civilization. "Their real poverty," says v. d. Steinen describing the Bakairi Indians of South America, "consists in the absence of general terms, as is the case with all uncivilized tribes. . . . Every parrot has its individual name, but there is no general term for 'parrot.' Similarly a general term for 'palm-tree' is wanting. They intimately know, however, the peculiarities of every kind of parrot or palm, and to this mass of details they cling, so that they cannot rise to a general notion. . . . They are stifled by the mass of material which they are unable to handle economically."² It is not dulness of perception, then, which delays the formation of general terms, but the very reverse. The vividness with which the different qualities of an *individuum* force themselves upon the mind prevents their subsuming a number of *individua* under one generic name. Vierkandt³ contrasts the passive receptivity of the uncivilized with the productive activity of the civilized mind: "The uncivilized mind is passive toward the impressions which assail it from without, it offers no resistance, as it were. . . . The uncivilized consciousness is . . . like a mirror, which simply reflects external impressions without materially

¹ See on this substitution of analytic for synthetic structure the note to p. 289.

² *Unter den Naturvölkern Zentral-Brasiliens* (1894), p. 81. Similarly in the *Verhandlungen d. VIIIten deutschen Geographentages* (1887), p. 22 f.

³ *Naturvölker und Kulturvölker*, p. 230 f.

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shaping or changing them. The psychical life of primitive man is therefore characterized by the almost photographic faithfulness with which he preserves and reproduces impressions from without, and his efficiency in this respect far surpasses that of civilized minds. For these sense impressions are simply the raw material which active apperception moulds and transforms into concepts. The perceptual material becomes a means toward an end, and the full energy of mental activity turns toward conceptual thinking. This explains why the mind of civilized nations excels in productive activity, while, at the same time, they are surpassed by uncivilized nations in passive receptivity. . . . In fact the uncivilized mind is incapable of true abstraction, which implies a step beyond mere receptivity, . . . and it is likewise incapable of comprehending many particular impressions under one general aspect or of fusing them into one whole, though such unification may not be purely conceptual but suggested by the percepts themselves." If this be true, many primitive "roots" must have had a particular, not a general, meaning.¹ For such a conversion of particular into general terms, of course, no actual examples can be given, because in the very earliest literary remains that process has long been completed, and the preliterate phrases in which it took place are gone forever. It is possible only to construct illustrative examples. Suppose that *monstrare* had at an early time the meaning "to point out with the finger." Suppose, further, that the element "with the finger" gained sufficient prominence to demand independent

¹ This highly concrete and particular meaning of primitive roots was alluded to by Curtius, *Griech. Etymol.* (1858), p. 77, § 13; cf. also Abel, *Sprachwissenschaftliche Abhand.* (1885), p. 25. On it Curtius rested his explanation of composite inflection, see above p. 174.

linguistic expression, thus: *digito monstrare*. It is clear that the meaning of *monstrare* has thus been lightened to that extent and has become more general ("to point out"), exactly as the addition of *de*, *in*, *ab* lightened the significance of *horto* by assuming¹ part of it. In the phrase *digito monstrare*, then, *monstrare* no longer means "to point with the finger," but simply "to point," and this second meaning may become so closely united with it that, even where *digito* is wanting, the general meaning is retained. It is not impossible to imagine that the common use of a phrase like "frequently repeated" may end in divesting "repeat" of its compound meaning of "say often" and reduce it to a general term "say." So (*pre*-)*hendo* (χαυδάνω) may have originally meant to "seize with the hand," but being partly emptied of its meaning in phrases like (*pre*-)*hendo manu*, it assumed a more general significance. The Greek series δείκνυμι ("to point out with the finger"), δείκνυμι δακτύλῳ ("to point out" + "with the finger"), δείκνυμι ("to point out") may be a case like *monstrare*. The Latin *dicere* (originally **to point out*), which, absorbing the meaning of the second member of the phrase *dicere verbis* ("to point out with words"), came to signify "to say," would exemplify the opposite, synthetic development, discussed in a previous section. It is worth noting that when a number of such concrete words assume a more general meaning, words which have heretofore been of similar meaning now become completely synonymous. And since complete synonyms do not continue to exist side by side in a language, the subsequent development must have proceeded along one of the three following lines: either the superfluous synonyms

¹ In the same way an added form of *velle* may assume part of the meaning of the optative *facias*.

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were lost, or they were put to new uses, or the synonyms were fused in one conjugational or declensional system, a process by which they were at least partially saved.

Whether this theory can be rightly and unreservedly maintained for the significance of all primitive roots is, however, subject to doubt. Not the correctness of the theory itself, but the scope of its application demands further investigation. Freudenthal,¹ in his reply to Gutzmann at the third International Congress of Psychologists, urged that while it is true that the child, like the savage, begins with individual percepts and does not use collective names until later, it must not be forgotten that indistinct general notions mark the very beginning of psychical life.² "A child calls any person at all similar to his father 'papa.' Savages, the uneducated European, children, distinguish between but a few kinds of flowers. Only with an increasing power of discrimination is a distinction between different individuals and species made. The process of individualizing runs parallel with the process of generalizing." It would, therefore, probably be safer to say that the vocabulary of the savage consists, on the one hand, of very concrete and particular terms, the fusion of which leads to real conceptual thinking. On the other hand, his vocabulary contains words which stand for indistinct notions, which only by an increase of precision are elevated to the rank of particular concepts. Interest and consequent attention determine to which of these two classes a name may belong. Parrots, being an object of considerable inter-

¹ Cf. the quotations in Ament's *Die Entwicklung v. Sprechen u. Denken beim Kinde* (1899), p. 149.

² Cf. Romanes' "recepts" in his *Mental Evolution in Man* (1889), p. 40 f.

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est to the Bakaïri Indians, were not comprehended in a class, but each one had its particular concrete name. The same reason accounts for the elaborate system of names to designate the various forms and degrees of relationship. On the other hand, a division of a thunderstorm was not attempted, *yélo* meaning both "thunder" and "lightning," and *kχópö*, "rain," "thunderstorm," and "cloud;" "the cloud in the sky," says v. d. Steinen, "has an interest for them in so far only as it means an approaching thunderstorm."

A similar lack of precision can be noted long after general terms and conceptual thinking have been developed, and the former have been firmly fixed in language. Colloquial and vulgar speech offers many examples where a very comprehensive general term is used instead of a more definite and particular one. Often the particular shade of the general term is indicated with sufficient distinctness by the context, as "he says [= begs] that you should write him," or it is already indicated by a special term, as "he says in his letter [= writes] that he won't come;" but often neither is the case, and many instances show a mere lack of discrimination; not a fusion of particular percepts into one general idea, but a failure to rise to a particular percept, an indefiniteness which prevents the speaker from making use of definite terms, although his language provides them.

In this way the great mass of synonyms which is accumulated in the literary language is reduced in the working vocabulary of everyday life, a simplification noted by G. Paris¹ for the Low Latin (in which *hellus* takes the place of the more finely distinguishing High Latin *pulcher*, *decorus*, *speciosus*, *formosus*, *venustus*, *lepidus*), and by Schiepek (1899), in his excellent

¹ Journal des Savants (1887), p. 74.

Syntax der Egerländer Mundart¹ (where "sein" stands for "ruhen," "ragen," "sich erheben;" "sagen" for "mittheilen," "erwähnen," "wünschen," "bitten," "ermahnen," "fragen"; "thun" and "machen" for "arbeiten," "sich benehmen," "spielen").

- 17 There now remain two classes of semantic change: the first is composed of those changes which are due to associative interference, the second class comprises the great mass of those changes of signification which are due to the transfer of the name of one object to another. Instances belonging to the former class have been given under the general head of associative interference. They fall naturally into two large groups: (1) those in which the associative link is purely formal, as when homophones influence each other semantically,² and (2) those cases in which the associative bond is semantic. In the latter case two words having some elements in common tend to extend their sphere of similarity. This is notably the case in speech mixture, as when³ the Slavic *sramota*, which covers the semantic area jointly occupied by the two German words "Scham" and "Schande," interferes with the restricted meaning of the latter and uses it for "Scham" in a phrase like "Habt ihr keine Scheu und Schande." Phrases and constructions are similarly treated.⁴
- 18 Whenever the name of one idea or concept is used to denote another independent idea or concept, we call

¹ P. 115 f.

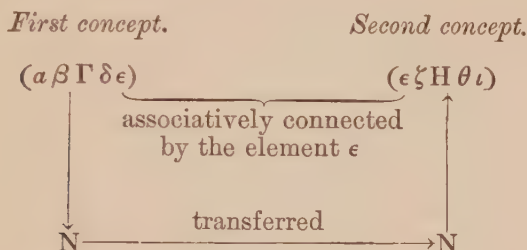
² The English "afford" has thus in the Anglo-German of New England infected the German "erfordern" with its meaning (*e. g.*, "Ich kann es nicht erfordern").

³ Schuchardt, *Slavodentsches und Slavitalienisches* (1885), p. 95 f.

⁴ Cf. the convenient summary of Windisch, *Theorie der Mischsprachen und Lehnwörter*, in *Sitz. Berichte d. kgl. sächs. Gesell. d. Wiss.*, XXXIX, p. 101 f., and Paul's *Principien*,³ p. 376, § 283.

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it transfer. The necessary condition for all transfer is the associative connection of the two ideas, hence there must be some semantic point of contact between them. The following diagram illustrates this last and perhaps most frequent method of semantic change:—



The second idea or concept which by associative connection is thus provided with a name may be entirely new and therefore stand in need of a term, a contingency which must inevitably arise in the progress and change of civilization. Or again, the second idea may have lost its name because the sphere of the latter has been changed by contraction or expansion, or because its use has been proscribed by reverence or prudery, or because phonetic or stylistic considerations¹ have made a new term desirable. And, finally, there may be no actual need at all for a new term, but the closeness of association may be great enough to produce the transfer of the name of one object to another; and possibly such a transfer may be at first occasional, but later it may enter into serious competition with the older term and end by taking its place. To classify the innumerable cases of

¹ *E. g.*, the effacement of the stem-character, irregularity, or ambiguity. It is clear that if a person has been misunderstood a number of times, he will avoid thereafter the use of the term which led to the misunderstanding.

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such transfers would mean to draw up a catalogue of all possible associative links by which two ideas or concepts can be united, for any temporal, local, or causal connection between two ideas may lead to labelling them with the same word-symbol, a process which Darmesteter and the French semanticists call *rayonnement*,¹ because the new meanings group themselves around the central word. Similes form the initial step to such transfers, which, as long as they are due to the play of the individual's associative fancy, are called metaphors (cf. the transition from the simile "He is *like* a lion in battle" to the metaphor "He is a lion in battle"), but when they have gained universal acceptance and use, the feeling of the metaphor gradually fades and finally disappears. In this manner the vocabularies of all languages are filled with faded metaphors.²

Two cases deserve special notice. First, the use of concrete, sensuous terms for abstract, supra-sensuous ideas, such as *finger* ("knead," then "compose"), *comprehendere*, like German "begreifen," the causal *ἐπ-εἰ* (first temporal "post hoc," then causal "propter hoc"). Here belong also the many terms expressing feelings or emotions which originally referred to some physical symptom through which the particular emotional state betrayed itself, such as *horror*, *φόβος* ("flight," then "fright"); and similarly Bechtel³ showed that the

¹ Similar is the old scholastic doctrine of *προθέσεις* = suppositiones (cf. Prantl, *Gesch. d. Logik*, Indexes, s. v.), to which Erdmann, *Die Bedeutung des Wortes* (1899), p. 87, has lately called renewed attention.

² Cf. especially Blase's *Die Philosophie des Metaphorischen* (1893); also Thomas' *Zur historischen Entwicklung der Metapher im Griechischen* (Erlangen Dissertation, 1891); Wundt, *Völkerpsychologie*, *Die Sprache*, II, p. 509 ff.

³ Über die *Bezeichnung der sinnlichen Wahrnehmung in den indogermanischen Sprachen* (1879), p. ix: "Die Wahrnehmungen durch die

words for sense perception in the Indo-European have only secondarily acquired this meaning, while primarily they designate the activity by which we perceive or the object which we perceive (*e. g.*, "feel" is connected with hand, *παλάμη*).

The second class of metaphors which ought to receive an exhaustive treatment is the transfer of terms from one sense sphere to another. These rest upon what James calls "the principle of analogous feeling stimuli,"¹ and are illustrated by phrases like "a sharp tone," "loud colors," "a high note." The phenomenon of synaesthesia has received rather full treatment at the hand of psychologists,² but its reflection in language has not yet

fünf Sinne, werden, falls ihre Bezeichnung nicht Verengung ist der Bezeichnung für die Wahrnehmung, allgemein sprachlich in der Weise zum Ausdruck gebracht, dass von der Perception als solcher völlig abgesehen, und statt ihrer die Thätigkeit genannt wird, auf welche die Perception erfolgt oder welche Gegenstand der Perception ist." Klein-paul, *Sprache ohne Worte* (1888), p. 185.

¹ Similarly Wundt, *Völkerpsychologie*, Die Sprache, II, p. 512: "Die Bedingungen zu solchen [Übertragungen] liegen aber überall darin, dass gewisse an sich disparate Sinnesqualitäten übereinstimmende Gefühle wachrufen, so dass in Folge der ausserdem stattfindenden engen Gebundenheit des Gefühlstones an die Empfindung die Sinneseindrücke selber als verwandte empfunden werden. . . ."

² Cf. R. Hennig, "Entstehung und Bedeutung der Synopsien," in *Zt. f. Psych. u. Phys. d. Sinnesorgane*, X (1896), p. 183; Flournoy, *Les phénomènes de Synopsie* (1893); Bleuler und Lehmann, *Zwangsmässige Lichtempfindungen durch Schall und verwandte Erscheinungen* (1881); Krohn, *Pseudo-Chromaesthesia in Americ. Journal of Psychol.*, V (1893), p. 20; S. de Mendoza, *L'Audition Colorée* (1892); Hilbert "Ein Fall von Geschmacksphotismen" in *Klinische Monatsblätter f. Augenheilkunde*, XXXV (1897), p. 271; "Die sogenannten Doppelempfindungen" in *Naturwissenschaft. Wochenschrift*, IX, no. 19; "Zur Kenntniss der sogenannten Doppelempfindungen" in *Archiv f. Augenheilkunde*, XXXI (1), p. 44; Die Pathologie des Farbensinnes (1897); Ebersson, "Über colorirten Geschmack" in *Wiener medicin. Presse* (1897), no. 49; Schenkl, "Casuistischer Beitrag zur Association der Worte mit Farben" in *Prager med. Wochenschrift* (1881), no. 48; "Über die Association von Worten

received adequate treatment by lexicographers.¹ Such an investigation would have to contrast the cases of individual synaesthesia with those which have gained social currency, and to trace the transitions from the former to the latter class; on the other hand a comparison of various related and unrelated languages with reference to their similarities and differences might also yield interesting results. It would necessarily pass from the strictly lexicographical sphere into that of literary style, and embrace the attempts at word-painting and sound-symbolism.²

- 19 Two points must finally be noted. In the first place, in the actual development of many words the different forms of semantic change outlined in the preceding sections will be found combined. Successive changes of the dominating element, gains of some elements, losses of others, associative interferences, and finally transfers may remove the last meaning of a word far

mit Farben" in the same periodical (1886), no. 10; Macdougall, *Psychol. Review*, V, p. 467; K. Deffner, in *Zt. f. Psychol. u. Physiol. d. Sinnesorgane*, XVIII, p. 262. Cf. also Heller's discussion of the "Surrogatvorstellungen" of the blind in his *Studien zur Blinden-Psychologie*, Wundt's *Philosoph. Stud.*, XI, p. 226, 406, 531; and E. Hanslick, *Vom Musikalisch-Schönen* (2nd ed., 1896), p. 53 f. "Wie es physiologisch ein Vicarieren eines Sinnes für den anderen bis zu einer gewissen Grenze giebt, so auch aesthetisch ein gewisses Vicarieren eines Sinneseindrucks für den andern, etc."

¹ Cf. Paul, *Principien*,³ p. 88, § 69; Bourdon, *L'Expression des Émotions*, etc., p. 28, 30 ff.

² Cf. Schenharitz, *Zt. f. roman. Philol.*, XXI, 199; Jodl, *Lehrb. d. Psych.*, p. 310, quotes René Gill's *Traité de Verbe*, and Zeising's *Acsthet. Forschungen* (1855), § 441; Bourdon, *L'Expression des Émotions*, etc., p. 87-91 with references to Guyau, *L'Art au point de vue sociologique*, p. 316; B. de Fonglères, *Traité de versification française*, p. 226 f., 262; *Traité de diction*, p. 174; and others: Hermann Bahr, *Renaissance* (1897), p. 59 f., contains further literature. — On the French symbolists see J. Lemaître, *Contemporains*, IV (1893), p. 60; F. Brunetière in *Rev. d. Deux Mondes*, 1888, November 1; Lanson, *Histoire de la Lit. Franç.*, p. 1092.

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from the original signification, so far indeed that the two extremes may represent practically contrasting ideas, as in the Italian *vizioso*, "darning," from Latin *vitiosus*, "vicious," or the German *einfach*, "bad," from *schlecht* (now *schlicht*), "simple," "straight."¹

Again, since words and phrases do not stand isolated in a language, any change in the meaning of one word frequently disturbs other words which are in some way connected with it, either by encroaching upon their territory or by leaving certain meanings uncovered. Heerdegen's discussion of the changes in the meaning of *deo*, *quasi*, and *pro*, which were caused by those of *oro*, is the first investigation of such "induced" changes. Of equal interest are the semantic changes of the legal terms *damnum*, *noxia*, *culpa*, *casus*, and *fortuna*, which Voigt² has very fully discussed and which are summarized in the following table:—

LEGAL TERMS FOR					
	1	2	3	4	5
	Legal Obligation, Trust	Damage	Guilt	Negli- gence	Chance
Older Period	<i>damnum</i>	<i>noxia</i>	<i>culpa</i>	<i>casus</i>	<i>fortuna</i>
Later Period	—	<i>damnum</i>	<i>noxia</i>	<i>culpa</i>	<i>casus</i>

¹ Cf. Darmesteter, *Revue philosophique*, II, 520. In *La vie des mots* (4th ed., p. 76) he speaks of this gradual semantic displacement as "enchaînement." Wundt uses "Verflechtung" in much the same sense (*Logik*, I² p. 35 ff.).

² In *Abhandl. d. kgl. sächs. Akad. d. Wiss.*, VI (1874), p. 1-180. Paul in his article in the *Sitz. Ber. d. Bayer. Akademie* (1894), also alluded to this concatenation.



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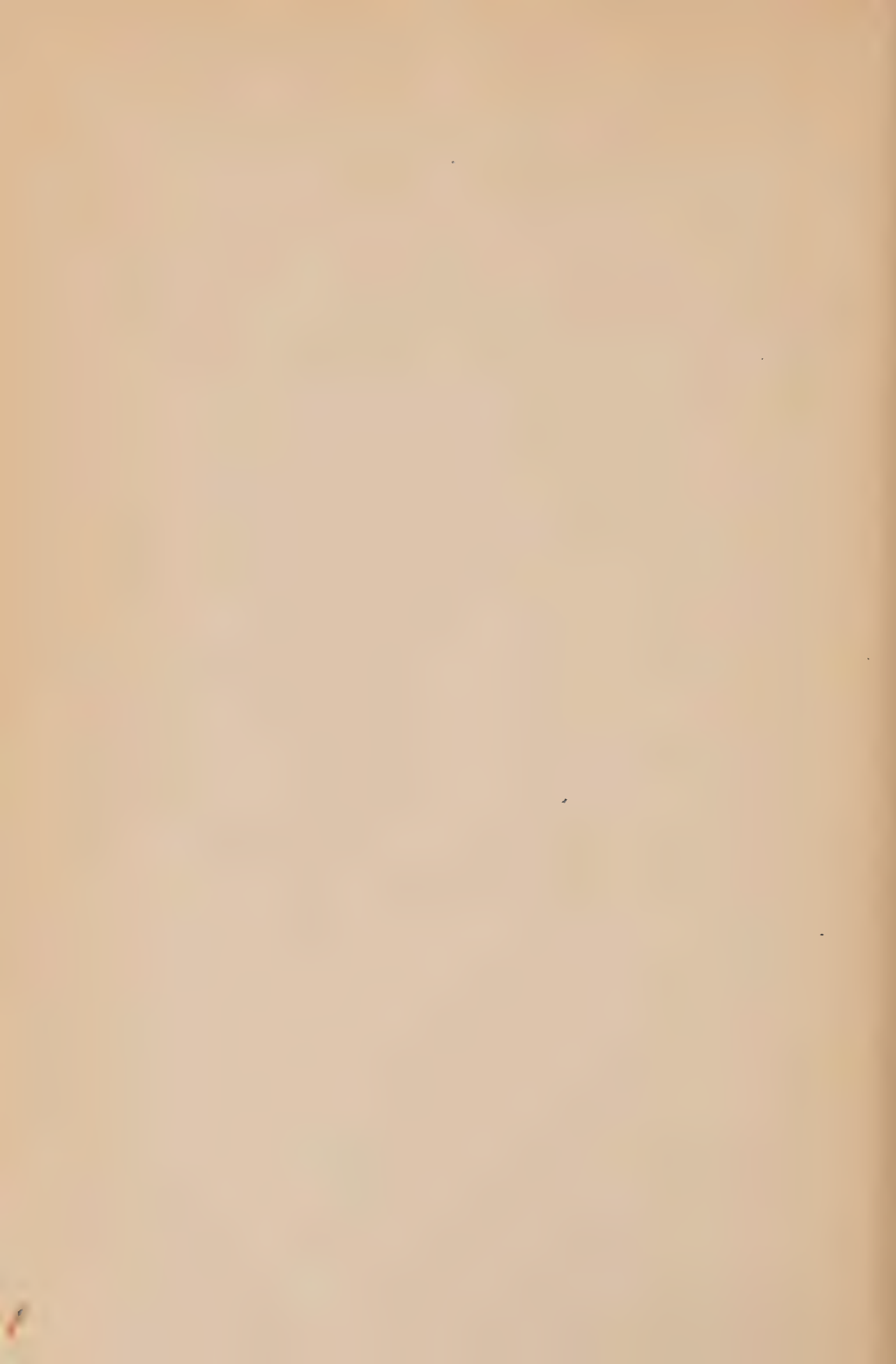
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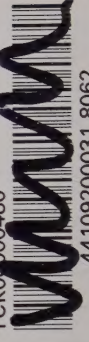
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